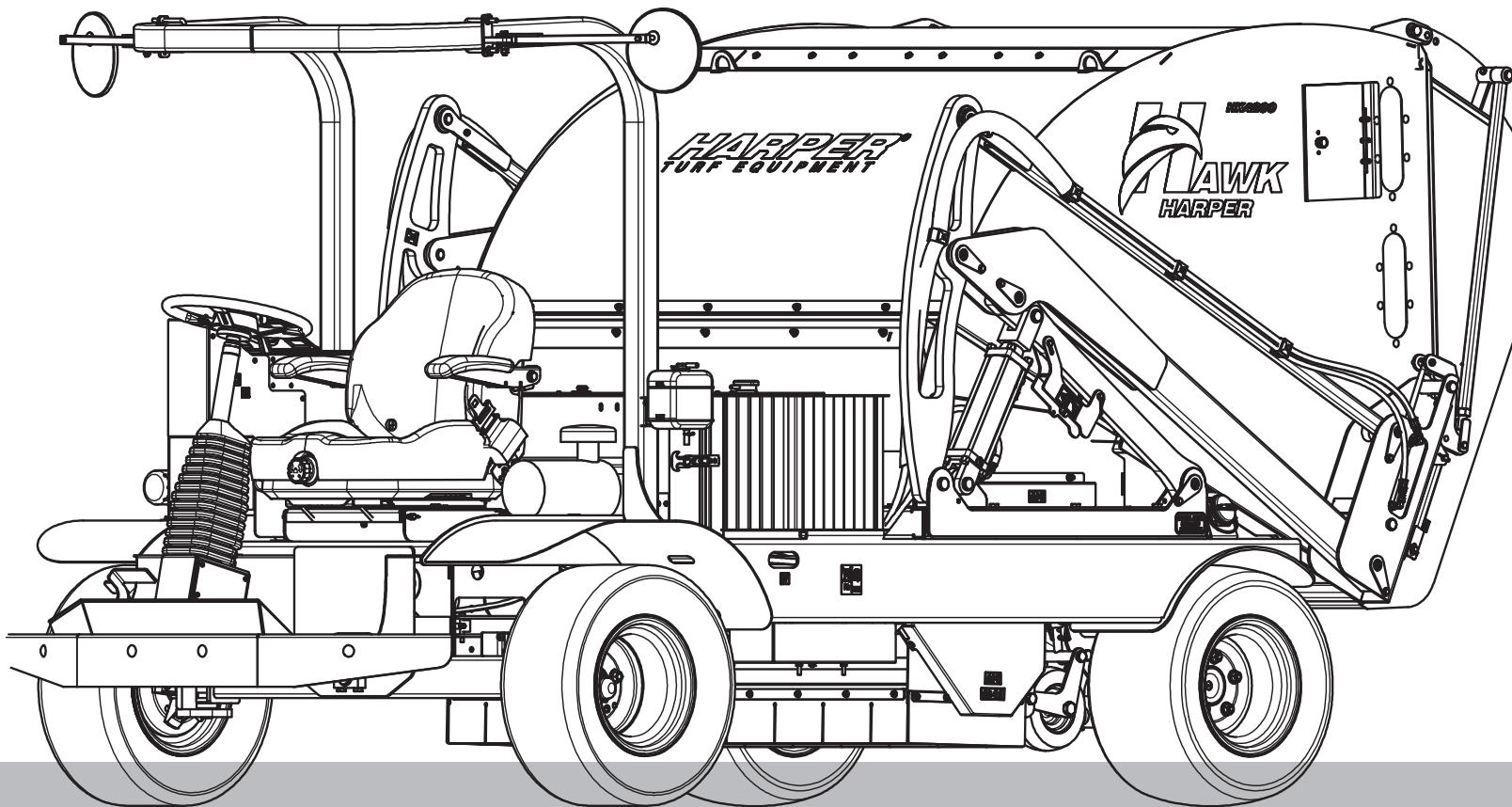


# HK 4200

Serial Number: 21A01 +  
Part # 301015



## HARPER HAWK PARTS MANUAL



## Thank you for purchasing a Harper Hawk.

As with all Harper products, the Harper Hawk has been developed through tough design and testing procedures to produce a top-quality machine. This manual gives assembly, operating, and service information for the model HK4200 Sweeper. Please read and understand all instructional material included with the Sweeper or its components before assembling and operating the equipment.

A Sweeper can present hazards to an operator who follows unsafe procedures in either the operation or maintenance of the unit. Therefore, **SAFETY WARNINGS** are presented at certain locations in the text.



THIS SYMBOL:



### SAFETY WARNING!

**MEANING:** Failure to understand and obey this warning may result in injury to you or others. Whenever this symbol is used, please pay very close attention to the information presented, and make sure you fully understand. If you do not, contact your dealer or Harper Industries, Inc. for clarification.



### SAFETY WARNING!

**ALL SHIELDS AND GUARDS MUST BE IN PLACE FOR PROPER AND SAFE OPERATION OF THIS EQUIPMENT. WHERE THEY ARE SHOWN REMOVED IN THIS MANUAL, IT IS FOR PURPOSES OF ILLUSTRATION AND INSTRUCTION ONLY. DO NOT OPERATE THIS EQUIPMENT UNLESS ALL SHIELDS AND GUARDS ARE IN PLACE.**



**WARNING:** Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information go to [www.P65warnings.ca.gov/diesel](http://www.P65warnings.ca.gov/diesel)

Harper Industries, Inc. is continually striving to improve the design and performance of its products. We reserve the right to make changes in specifications and design without thereby incurring any obligation relative to previously manufactured products.

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**HK4200**

**HARPER**  
TURF EQUIPMENT

## LIMITED WARRANTY

Harper Industries, Inc. (HII) warrants to each purchaser of a new Harper Hawk from an authorized dealer or representative, that such equipment is free of manufacturer's defects in workmanship and materials which appear while in normal service for a period of ONE YEAR commencing with delivery to the original user.

The obligation of HII under this warranty is expressly limited, at our option, to replacement or repair at a service facility designated by Harper Industries or at the manufacturing plant in Harper, KS. A part will be replaced after inspection discloses it to have been defective. This warranty does not apply to defects caused by damage or unreasonable use (including failure to provide reasonable and necessary maintenance, or by performing functions without genuine Harper Turf Sweeper accessories) while in the possession of the consumer.

Warranty is limited to parts, labor and ground freight delivery of replacement parts. HII shall not be liable for the consequential damages of any kind, including but not limited to consequential labor costs or transportation charges in connection with replacement or repair of defective parts.

This warranty does not apply to parts subjected to misuse, abuse, alteration, improper or inadequate maintenance, or normal wear (including belts, battery, chains, filters, knives, brush and broom).

Engines are not covered under this warranty. Refer to manufacturer's warranty for specific warranty information. Harper Industries, its agents or representatives, make or imply no other warranties.

Harper Industries makes no warranty with respect to trade accessories. They are subject to the warranties of their respective manufacturers.

ANY IMPLIED OR STATUTORY WARRANTIES, INCLUDING ANY WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY LIMITED TO THE DURATION OF THIS WRITTEN WARRANTY. HII makes no other express warranty, nor is anyone authorized to make any on behalf of HII.

For further information please contact your nearest Harper Turf Sweeper dealer.

## RECORDS

Date of Purchase \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

Dealer's Name \_\_\_\_\_

Dealer's Phone \_\_\_\_\_

Serial Number Machine \_\_\_\_\_

Serial Number Engine \_\_\_\_\_

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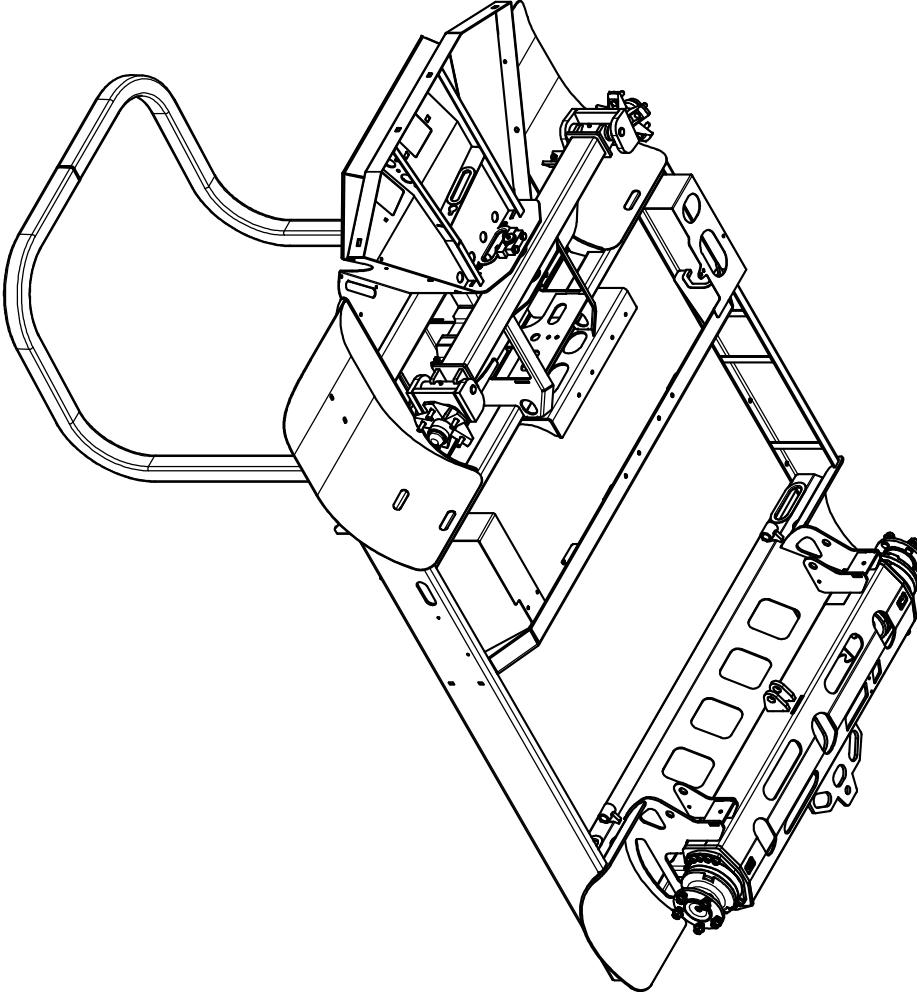
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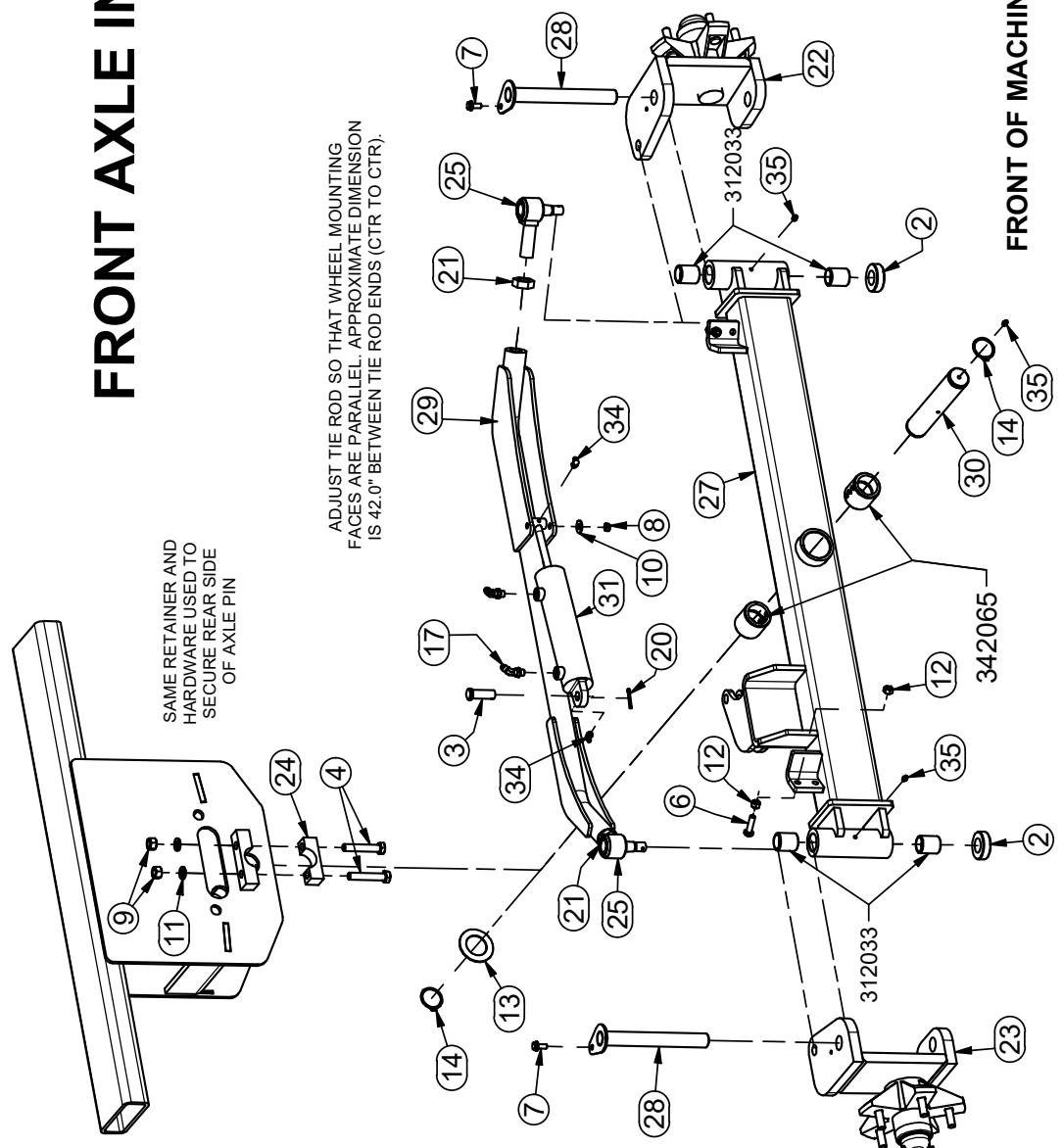
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# WHEEL MOTOR & AXLE INSTALLATION

Parts List			
ITEM	QTY	PART #	DESCRIPTION
1	7'	100365	MOLDING - EDGE GUARD, 5/32
2	2	102043	BEARING - THRUST, 1.0 ID X 5/8 T
3	1	102136	Clevis Pin, 5/8 x 1.5
4	4	110129	BOLT, 1/2-13 X 2.75 HEX
5	20	110244	BOLT, 1/2-13 X 1.5 SHCS
6	2	110425	BOLT, 3/8-16 X 1.25
7	2	110444	BOLT, 5/16-18 X 0.75, WIZ FLANGE
8	1	110600	NUT, 5/16-18, UNITORQUE LOCK
9	4	110610	NUT, 1/2-13
10	1	110665	WASHER, 5/16" FLAT STANDARD
11	24	110666	WASHER, 1/2" LOCK
12	4	110826	NUT, 3/8-16 GR 5
13	1	110882	WASHER - THRUST, GUS MTI-24
14	2	110888	SNAP RING - EXT, 1-1/2
15	1	111190	Bolt, 3/8 x 2 Shoulder
16	10'	112084	Rubber Seal, .625 X .25
17	2	120027	ADAPTER, 4MB-4MJ 45
18	6	120249	ADAPTER, 4MJ-6MB
19	4	120446	ADAPTER, 8MJ-10MB
20	1	200029	COTTER PIN, 5/32 X 1
21	2	302129	NUT, 7/8-18 HEX JAM GR 2
22	1	305109	ASSY, LH SPINDLE & HUB
23	1	305110	ASSY, RH SPINDLE & HUB
24	2	311459	KEEPER - AXLE PIVOT, LOWER
25	2	312032	Tie Rod End, RH
26	1	315350	FRAME WELDMENT, SWEEPER
27	1	315354	WELDMENT, FRONT AXLE, 2WD
28	2	315357	WELDMENT, 2WD KINGPIN
29	1	315358	WELDMENT, ROUND STEERING LINK
30	1	317174	PIN, FRONT AXLE
31	1	323010	CYLINDER - STEERING, 1-3/4 X 6
32	1	323057	MOTOR, LH REAR WHEEL, 24.3 CI, 2-SPD
33	1	323058	MOTOR, RH REAR WHEEL, 24.3 CI, 2-SPD
34	2	500230	GREASE ZERK, 1/4-28 90deg
35	3	510174	GREASE ZERK, 1/4-28 ST



## FRONT AXLE INSTALLATION

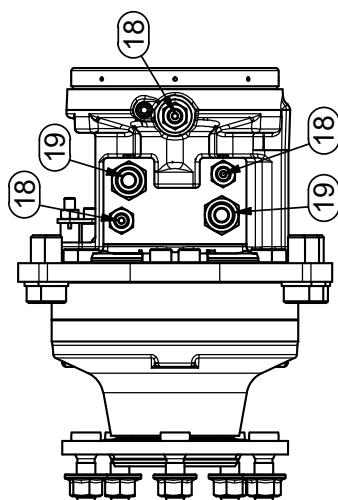


Hub Service Parts		
PART #	QTY	DESCRIPTION
342068	1	HUB KIT (INCLUDES BEARINGS)
312001	1	GREASE CAP
312002	1	GREASE SEAL
312003	5	STUD, 1/2 - 20 NF
312005	1	OUTER RACE, OD 1.980
312006	1	OUTER BEARING, ID 1.063
312007	1	INNER RACE, OD 2.362
312008	1	INNER BEARING, ID 1.378
312038	1	HUB (ONLY), 5 ON 5-1/2
310261	1	NUT, CASTLE 1-14
312009	1	WASHER, FLAT 1.0"
510983	1	COTTER PIN, 5/32 X 2

FRONT OF MACHINE

**LH Wheel Motor:**

Model Code: MSE02-2-G2A-F03-1120-Y8JM

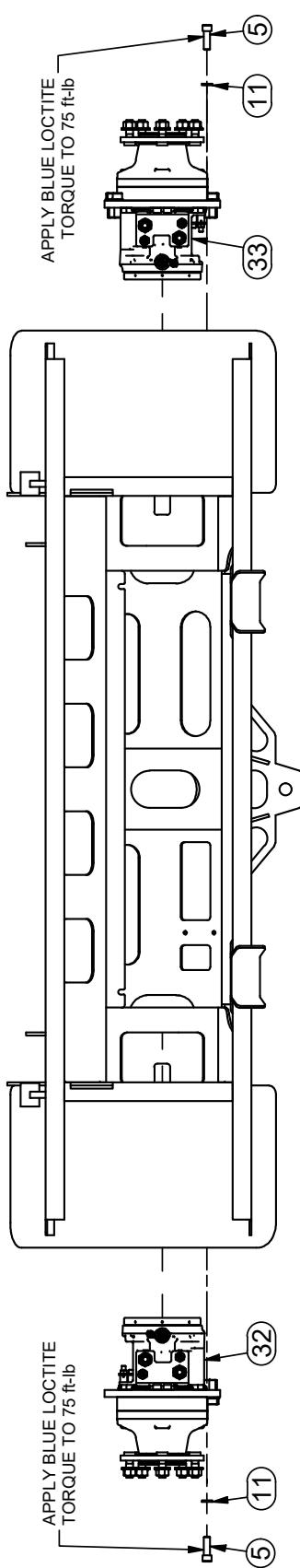
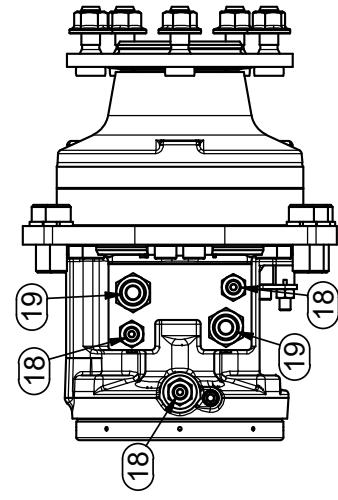


Parts List

ITEM	QTY	PART #	DESCRIPTION
5	20	110244	BOLT, 1/2-13 X 1.5 SHCS
11	24	110666	WASHER, 1/2" LOCK
18	6	120249	ADAPTER, 4MJ-6MB
19	4	120446	ADAPTER, 8MJ-10MB
32	1	323057	MOTOR, LH REAR WHEEL, 24.3 CI, 2-SPD
33	1	323058	MOTOR, RH REAR WHEEL, 24.3 CI, 2-SPD
22	1	305109	ASSY, LH SPINDLE & HUB
23	1	305110	ASSY, RH SPINDLE & HUB

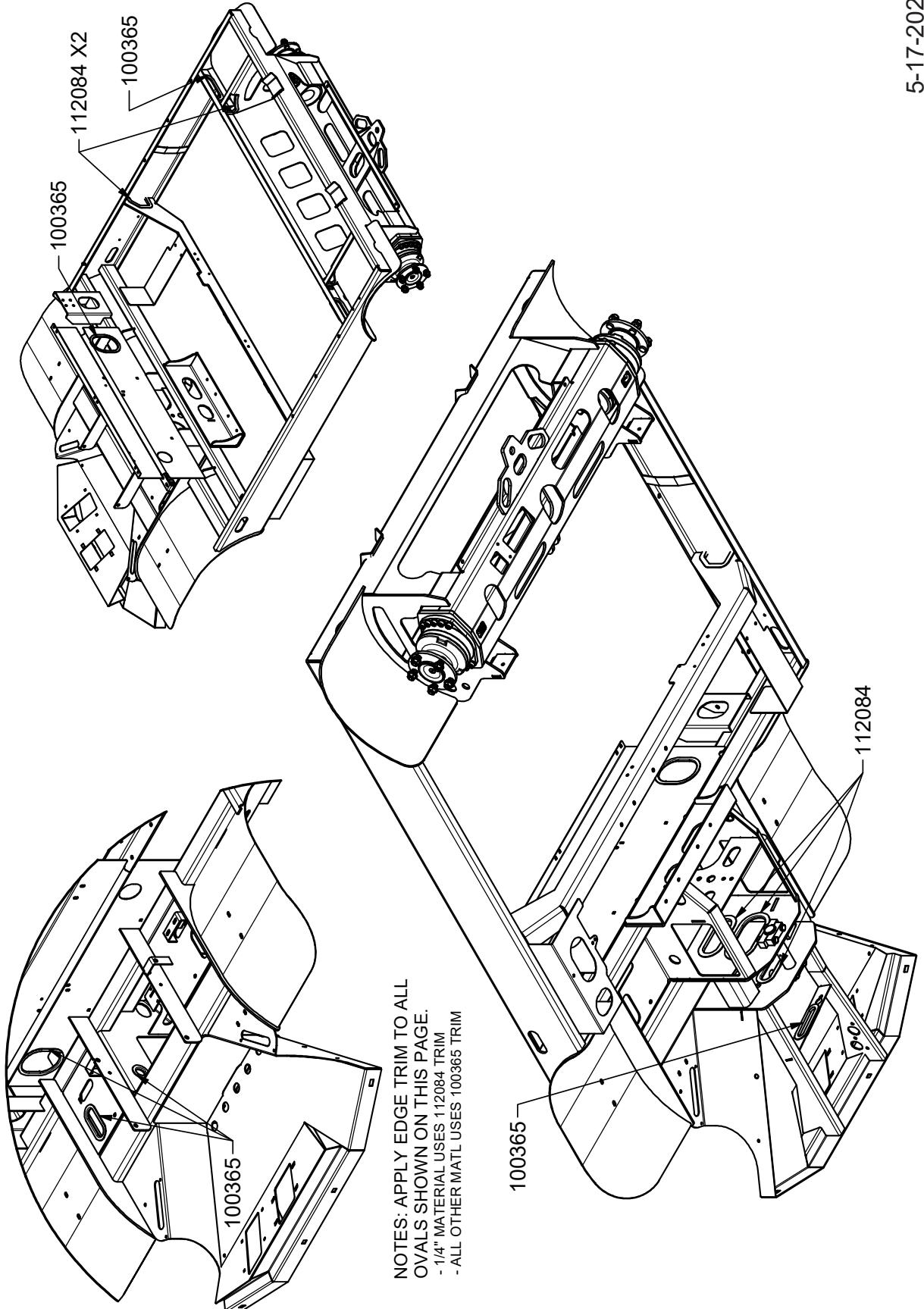
**RH Wheel Motor:**

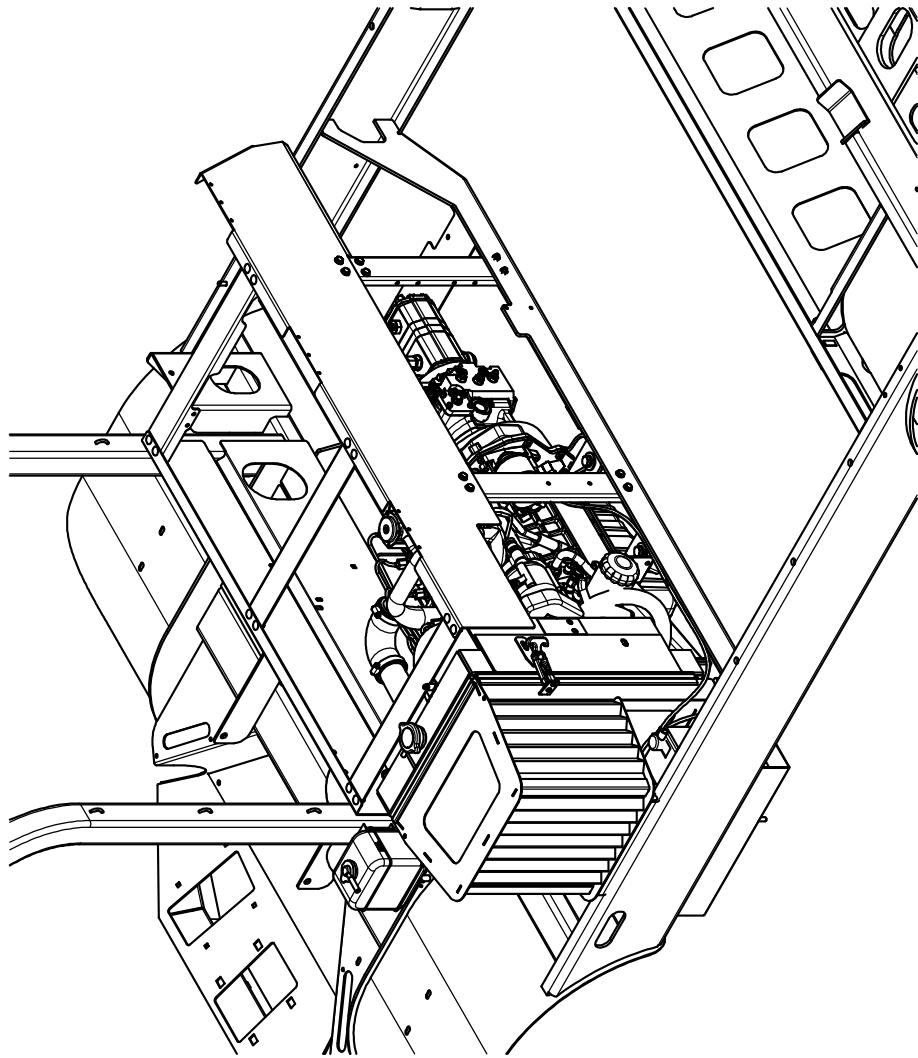
Model Code: MSE02-2-D2A-F03-1120-Y8JM

**WHEEL MOTOR INSTALLATION**

## EDGE TRIM PLACEMENT

305105 | REV. NC





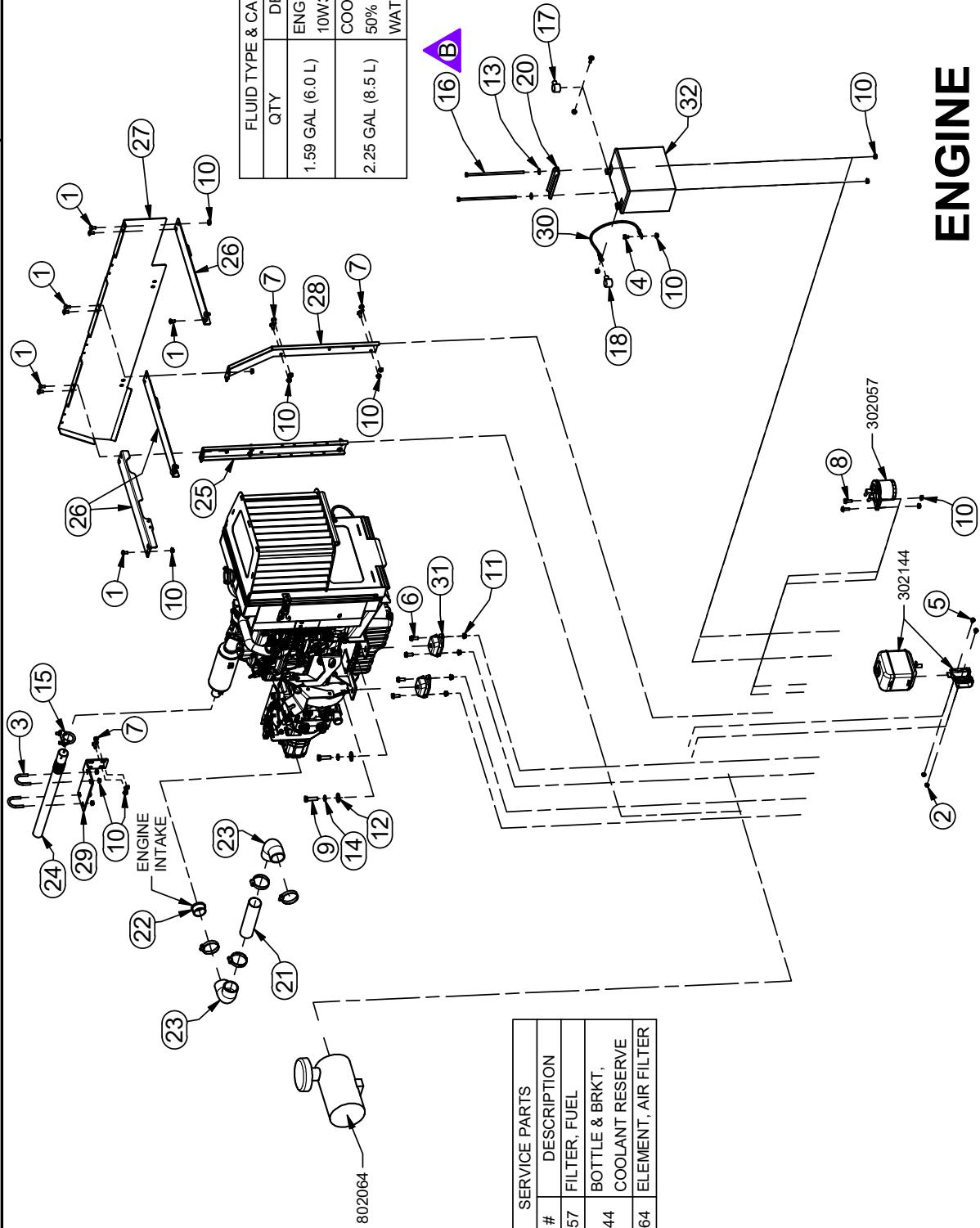
Parts List			
ITEM	QTY	PART #	DESCRIPTION
1	12	110020	Bolt, 5/16-18 X 0.75 in Carriage
2	2	110290	NUT, 1/4-20 WIZ FLANGE
3	2	110362	U-BOLT, 5/16
4	1	110426	BOLT, 5/16-18 X 0.5, WIZ FLANGE
5	2	110434	BOLT, 1/4-20 X 0.5, WIZ FLANGE
6	8	110440	BOLT, 3/8-16 X 1, WIZ FLANGE
7	10	110444	BOLT, 5/16-18 X 0.75, WIZ FLANGE
8	2	110459	BOLT, 5/16-18 X 1, WIZ FLANGE
9	4	110577	BOLT, M12x1.75x 45 Gr 10.9
10	31	110606	NUT, 5/16-18 WIZ FLANGE
11	8	110645	NUT, 3/8-16 WIZ FLANGE
12	4	110658	WASHER, 1/2" FLAT STANDARD
13	2	110665	WASHER, 5/16" FLAT STANDARD
14	4	110666	WASHER, 1/2" LOCK
15	1	110779	CLAMP, 1 1/2" EXHAUST
16	2	111198	BOLT, 5/16-18 X 9.5 Zinc Full Thread
17	1	132069	BATTERY TERMINAL COVER, POSITIVE
18	1	132070	BATTERY TERMINAL COVER, NEGATIVE
19	1	305072	ASSY, ENGINE
20	1	311603	BRACKET - HOLD DOWN, BATTERY
21	1	311941	TUBE, AIR INTAKE
22	1	312036	REDUCER, 2.0" TO 1.75"
23	2	312037	ELBOW, 2.0" 90 DEG
24	1	315389	WELDMENT, HAWK EXHAUST
25	1	317205	SUPPORT, REAR SHIELD
26	3	317206	SUPPORT, UPPER SHIELD
27	1	317235	SHIELD, REAR ENGINE
28	1	317236	SUPPORT, VERTICAL REAR SHIELD
29	1	317248	BRKT, EXHAUST SUPPORT
30	1	530051	CABLE, BATTERY/GND 16" BLACK
31	4	800021	MOTOR MOUNT
32	1	832011	BATTERY, SEALED GEL W/L TERMINAL

## ENGINE INSTALLATION

5-26-2021

305082

REV: B



## ENGINE INSTALLATION

5-26-2021

**HK4200**

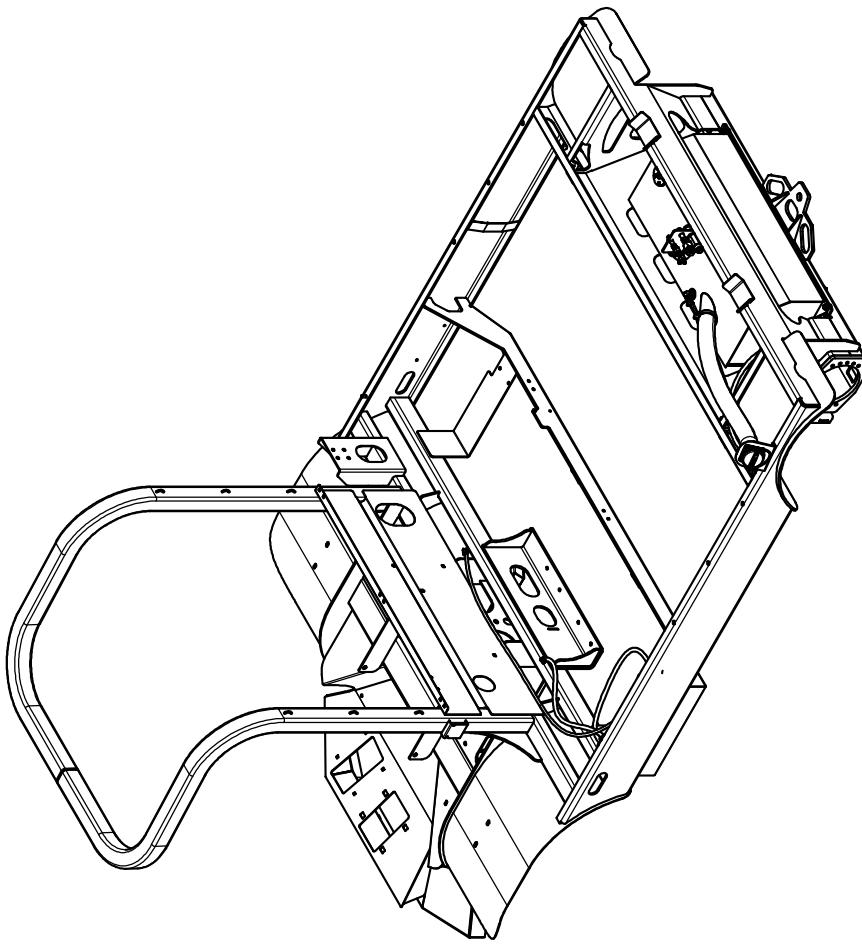
**HARPER®**  
TURF EQUIPMENT

# FUEL TANK INSTALLATION

305088

REV: A

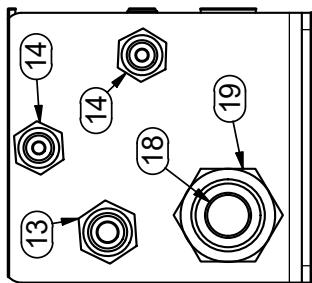
Parts List			
ITEM	QTY	PART #	DESCRIPTION
1	10	100361	CLAMP, HOSE #4.25 MINI
2	128"	100708	Hose, 3/16 High Pressure Fuel
3	132"	100756	Hose, 5/16 High Pressure Fuel
4	1	110090	WASHER, #10 FLAT STANDARD
5	4	110290	NUT, 1/4-20 WIZ FLANGE
6	4	110437	BOLT, 3/8-16 X 0.75, WIZ FLANGE
7	4	110468	BOLT, 1/4-20 X 0.75, WIZ FLANGE
8	4	110631	NUT, 10-24 LOCK NYLON INSERT
9	4	110645	NUT, 3/8-16 WIZ FLANGE
10	4	110709	SCREW, 10-24 X 0.75, RHMS
11	5	112053	SCREW, 10-32 X 1/2 MACH SEAL
12	1	120040	ADAPTER, 4MJ-6MP90
13	1	120102	ADAPTER, BULKHEAD, 6MJ-6MJ
14	2	120126	ADAPTER, BULKHEAD, 4MJ-4MJ
15	2	120215	ADAPTER, 4MJ-4FJX-4MJ
16	1	120216	ADAPTER, 6MJ-6FJX-6MJ
17	1	120378	ADAPTER, 5FB-6FBX
18	1	120487	ADAPTER, 12MJ-12MJ-12MJ BULKHEAD
19	1	120495	Nut, Lock, Bulkhead, -12
20	1	120516	Adapter, 12FJX-12mj90tube
21	1	120655	Adapter, 3hb-4fj
22	1	301010	HOSE, FUEL FILL
23	1	302137	FUEL CAP, 2" DIESEL, GREEN
24	1	315301	WELDMENT, DIESEL FILLER NECK
25	1	315342	WELDMENT, FUEL TANK
26	1	317175	BRKT, FUEL FILL
27	1	332058	Fuel Level Sender, 9.5" Depth
28	1	500172	GASKET, FUEL SENDER
29	1	500209	FITTING, REDUCER 3/8 X 1/4 NPT
30	2	511003	CLAMP, HOSE #36 2.25"
31	1	802023	VALVE, FUEL SHUT OFF 6MB-4MP



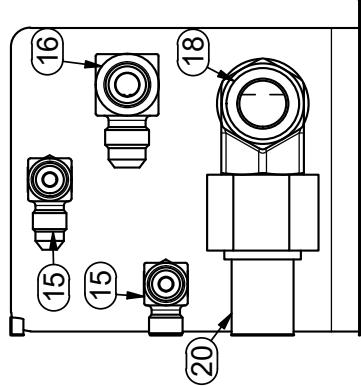
5-17-2021

# FUEL TANK INSTALLATION

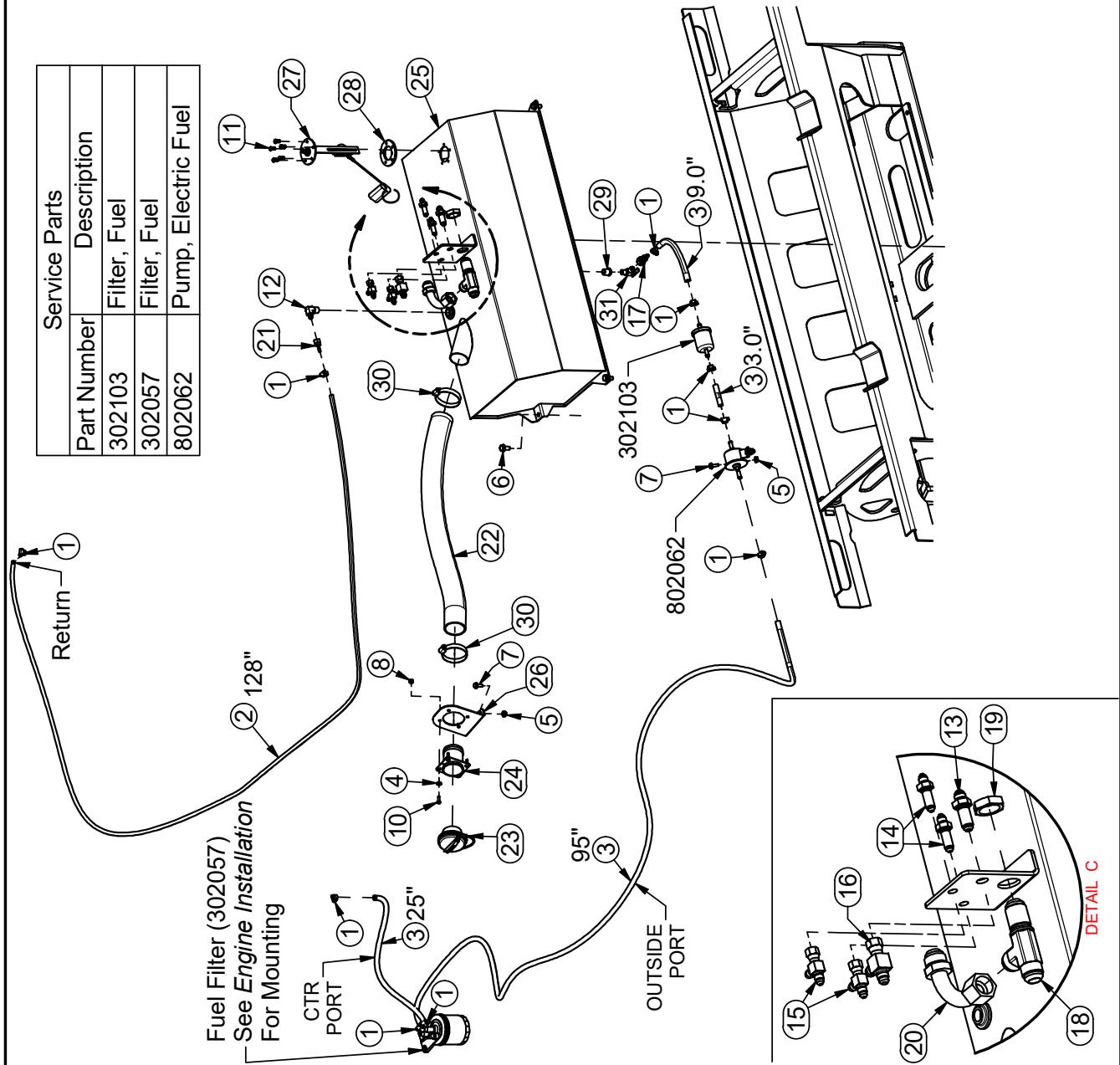
## Right Side Plumbing



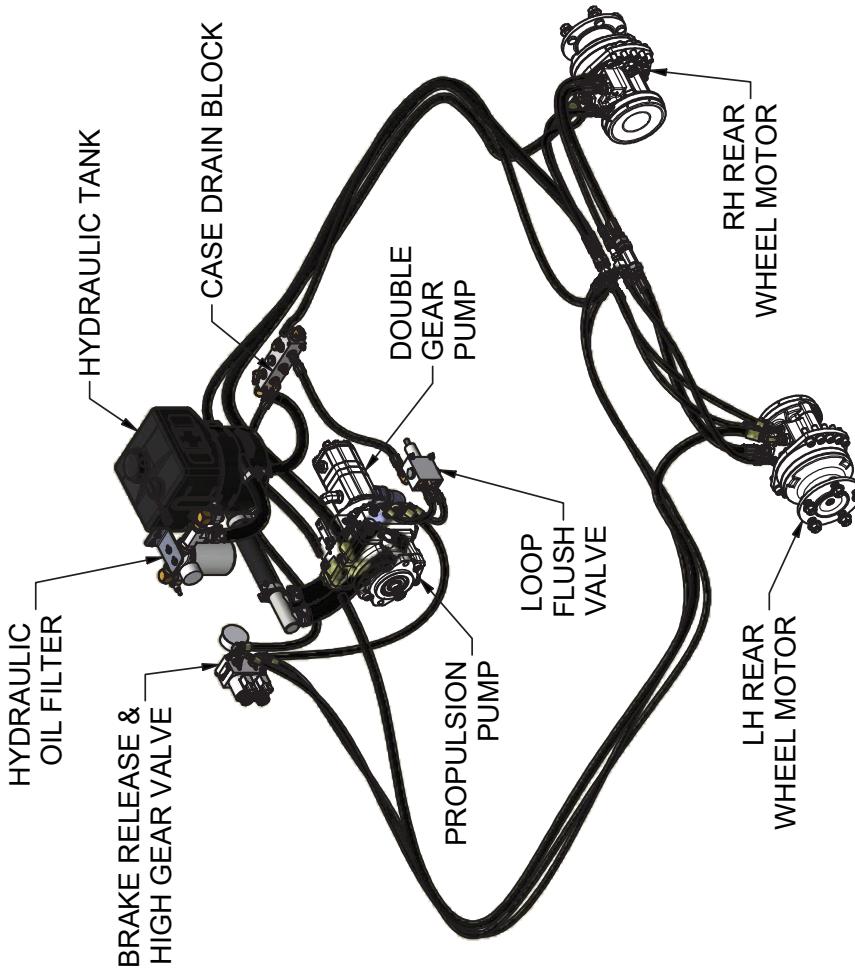
## Left Side Plumbing



Service Parts	
Part Number	Description
302103	Filter, Fuel
302057	Filter, Fuel
802062	Pump, Electric Fuel



# PROPELLION HYDRAULIC INSTALLATION

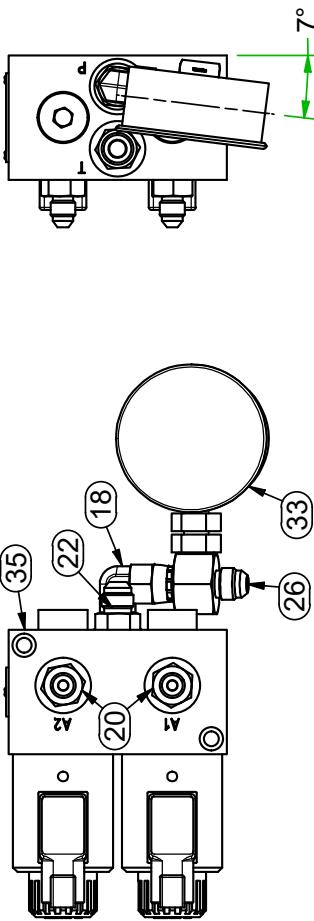


Parts List		DESCRIPTION	
ITEM	QTY	PART #	
1	2	110053	Hex Nut M12 X 1.75 Thd
2	6	110290	NUT, 1/4-20 WIZ FLANGE
3	2	110410	BOLT, 1/4-20 X 2.5
4	4	110434	BOLT, 1/4-20 X 0.5, WIZ FLANGE
5	4	110440	BOLT, 3/8-16 X 1, WIZ FLANGE
6	2	110844	BOLT, 1/4-20 X 3
7	2	110845	BOLT, M12x1.75 x 60 Gr 10.9
8	2	111011	Bolt, M5-.80 X 55, SHCS, Stainless
9	2	111012	STEP AP203
10	2	111013	WASHER, M5, Flat, Stainless
11	2	111101	STEP AP203
12	3	112007	CLAMP, 1.75", T-BOLT
13	6	112008	CLAMP, 1.25", T-BOLT
14	2	112101	CLAMP, 1.50", T-BOLT
15	2	112137	CLAMP, 2.00", T-BOLT
16	2	120134	ADAPTER, 6MJ-8MB90
17	1	120187	ADAPTER, 12BH-8MB90
18	4	120222	ADAPTER, 6MJ-6MB90
19	2	120226	ADAPTER, 12BH-12MB90
20	2	120249	ADAPTER, 4MJ-6MB
21	1	120303	ADAPTER, 12MB-16HB
22	3	120319	ADAPTER, 6MJ-6MB
23	1	120728	PLUG, 6MB HEX
24	2	120739	ADAPTER, 4MJ-8MB
25	1	120742	ADAPTER, 12MB-12FB-12FB
26	1	120744	ADAPTER, 6FJX-6MJ-4FB, GAGE PORT
27	1	122016	ADAPTER, 12MJ-12MJ-12FJX
28	1	122034	HEAD, SPIN-ON FILTER, -12SAE
29	1	260265	MOUNTING BRACKET, FILTER
30	1	305087	Asy, Hydraulic Tank, ISO
31	1	322095	BLOCK, CASE DRAIN
32	1	322096	TEE, 1.5 x 1.25 x 1.25 BH
33	1	322098	GAUGE, PRESSURE, 600 PSI, 4MB
34	1	323060	VALVE, LOOP FLUSH
35	1	323061	VALVE, BRK RELEASE & HI GEAR
36	1	323068	HOSE KIT, 2WD HAWK GROUND DRIVE
37	2	570483	TOOL, BRAKE RELEASE
38	1	822044	FILTER, 3 MICRON
39	1	822045	GAUGE, OIL FILTER

# VALVE ASSEMBLIES

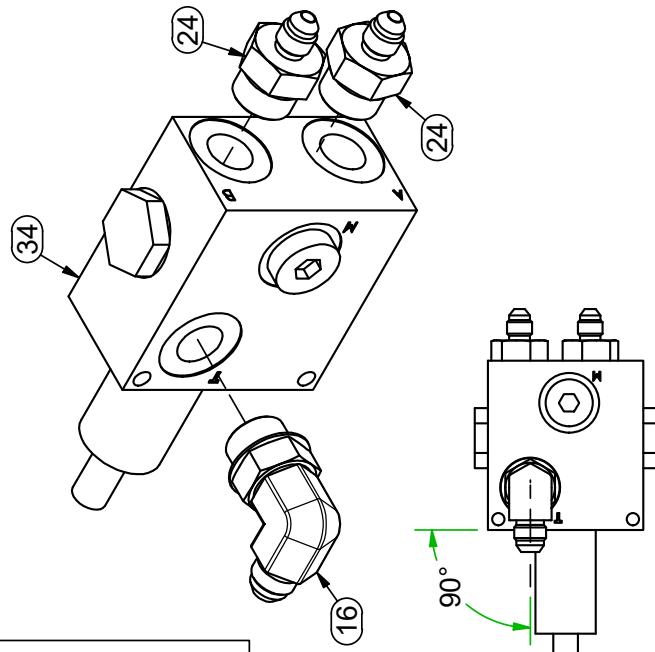
## Brake Release & High Gear Valve

Parts List			
ITEM	QTY	PART #	DESCRIPTION
18	1	120222	ADAPTER, 6MJ-6MB90
20	2	120249	ADAPTER, 4MJ-6MB
22	1	120319	ADAPTER, 6MJ-6MB
26	1	120744	ADAPTER, 6FJX-6MJ-4FB, GAGE PORT
33	1	322098	GAUGE, PRESSURE, 600 PSI, 4MB
35	1	322061	VALVE, BRK RELEASE & HI GEAR

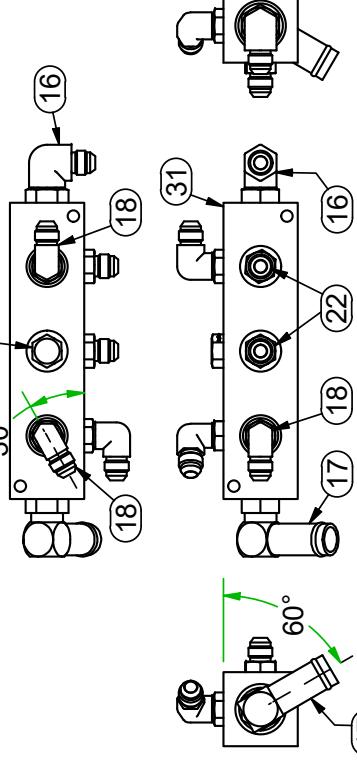


## Loop Flush Valve

Parts List			
ITEM	QTY	PART #	DESCRIPTION
16	1	120134	ADAPTER, 6MJ-8MB90
24	2	120739	ADAPTER, 4MJ-8MB
34	1	323060	VALVE, LOOP FLUSH

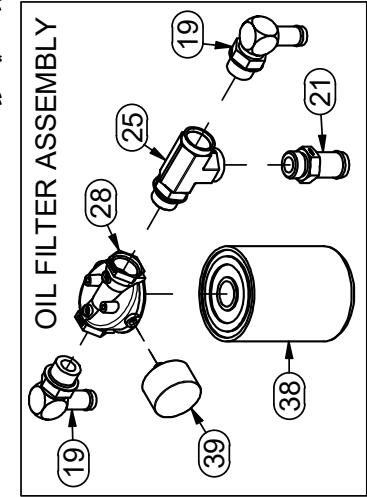
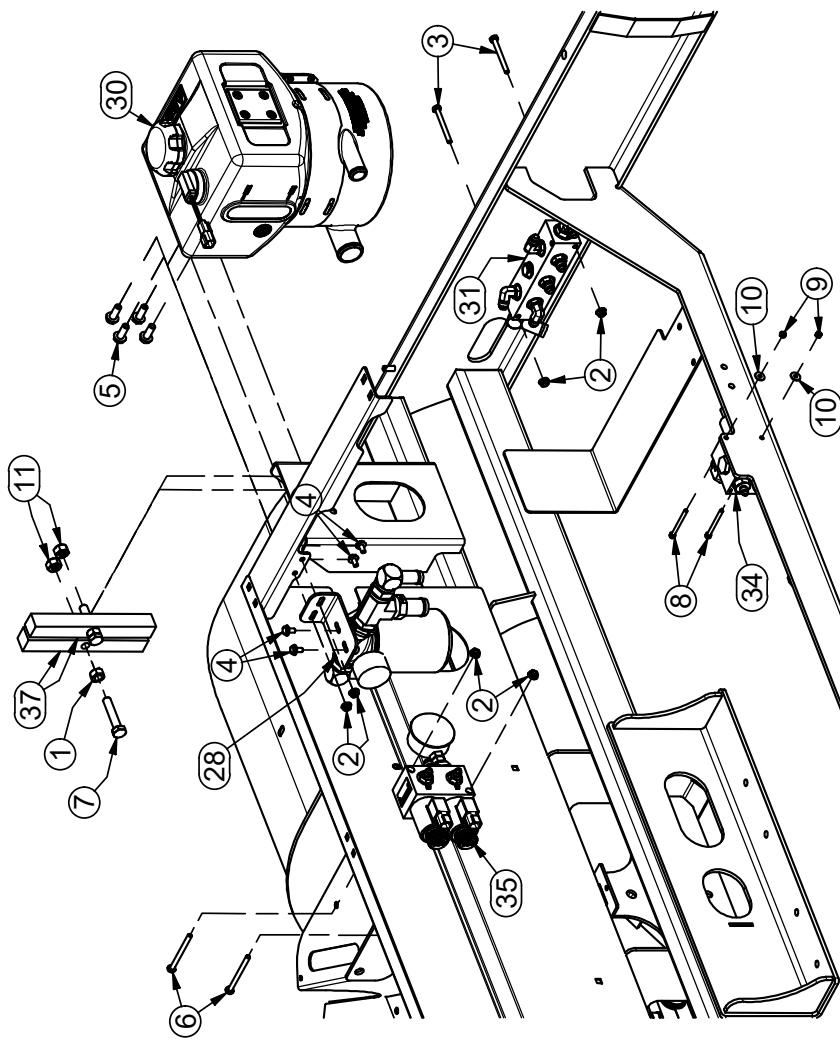


## Case Drain Block



Parts List			
ITEM	QTY	PART #	DESCRIPTION
16	1	120134	ADAPTER, 6MJ-8MB90
17	1	120187	ADAPTER, 12BH-8MB90
18	3	120222	ADAPTER, 6MJ-6MB90
22	2	120319	ADAPTER, 6MJ-6MB
23	1	120728	PLUG, 6MB HEX
31	1	322095	BLOCK, CASE DRAIN

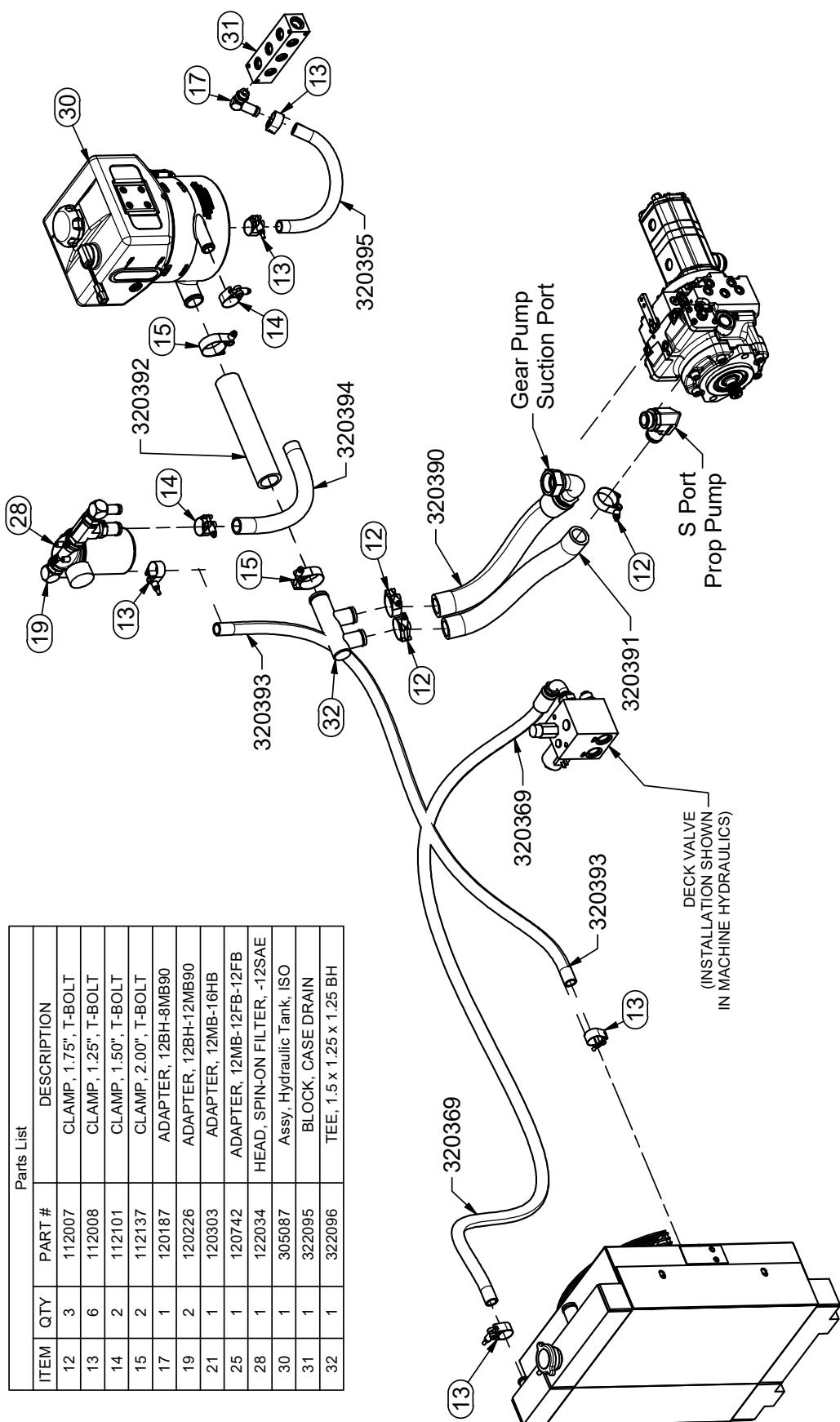
# TANK, FILTER, & VALVE INSTALLATION



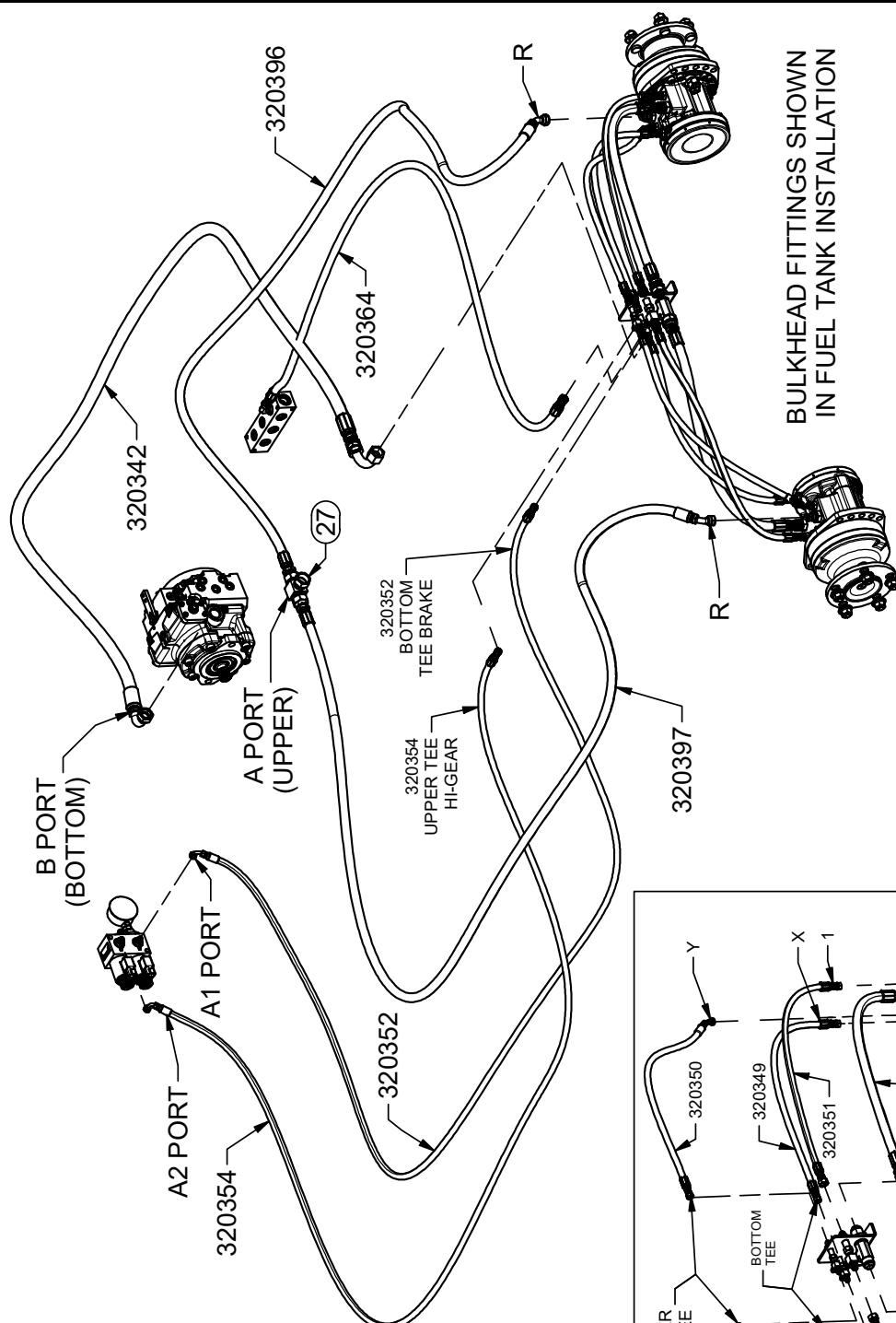
SOME PARTS HIDDEN  
FOR CLARITY

Parts List		
ITEM	QTY	PART #
1	2	110053 Hex Nut M12 X 1.75 Thd
2	6	110290 NUT, 1/4-20 WIZ FLANGE
3	2	110410 BOLT, 1/4-20 X 2.5
4	4	110434 BOLT, 1/4-20 X 0.5, WIZ FLANGE
5	4	110440 BOLT, 3/8-16 X 1, WIZ FLANGE
6	2	110844 BOLT, 1/4-20 X 3
7	2	110845 BOLT, M12x1.75 x 60 Gr 10.9
8	2	111011 Bolt, M6-.80 X 55, SHCS, Stainless
9	2	111012 STEP AP203
10	2	111013 Washer, M5, Flat, Stainless
11	2	111101 STEP AP203
12	2	120226 ADAPTER, 12BH-12MB90
13	1	120303 ADAPTER, 12MB-16HB
14	1	120728 PLUG, 6MB HEX
15	2	120739 ADAPTER, 4MJ-8MB
16	1	120742 ADAPTER, 12MB-12FB-12FB
17	1	120744 ADAPTER, 6FJX-6MJ-4FB, GAGE PORT
18	1	122034 HEAD, SPIN-ON FILTER, -12SAE
19	1	305087 Assy, Hydraulic Tank, ISO
20	1	322095 BLOCK, CASE DRAIN
21	1	322098 GAUGE, PRESSURE, 600 PSI, 4MB
22	1	323060 VALVE, LOOP FLUSH
23	1	323061 VALVE, BRK RELEASE & HI GEAR
24	2	570483 TOOL, BRAKE RELEASE
25	1	822044 FILTER, 3 MICRON
26	1	822045 GAUGE, OIL FILTER

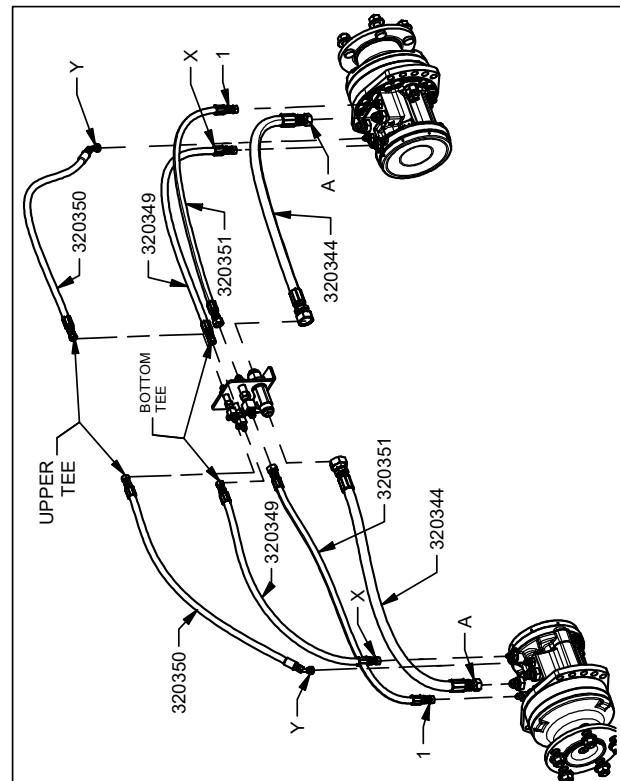
Parts List			
ITEM	QTY	PART #	DESCRIPTION
12	3	112007	CLAMP, 1.75", T-BOLT
13	6	112008	CLAMP, 1.25", T-BOLT
14	2	112101	CLAMP, 1.50", T-BOLT
15	2	112137	CLAMP, 2.00", T-BOLT
17	1	120187	ADAPTER, 1/2BH-8MB90
19	2	120226	ADAPTER, 1/2BH-12MB390
21	1	120503	ADAPTER, 12MB-16HB
25	1	120742	ADAPTER, 12MB-12FB-12FB
28	1	122034	HEAD, SPIN-ON FILTER, -12SAE
30	1	305087	Assy, Hydraulic Tank, ISO
31	1	322095	BLOCK, CASE DRAIN
32	1	322096	TEE, 1.5 x 1.25 x 1.25 BH



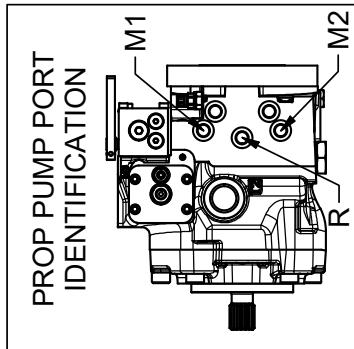
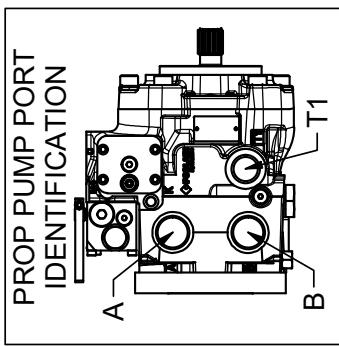
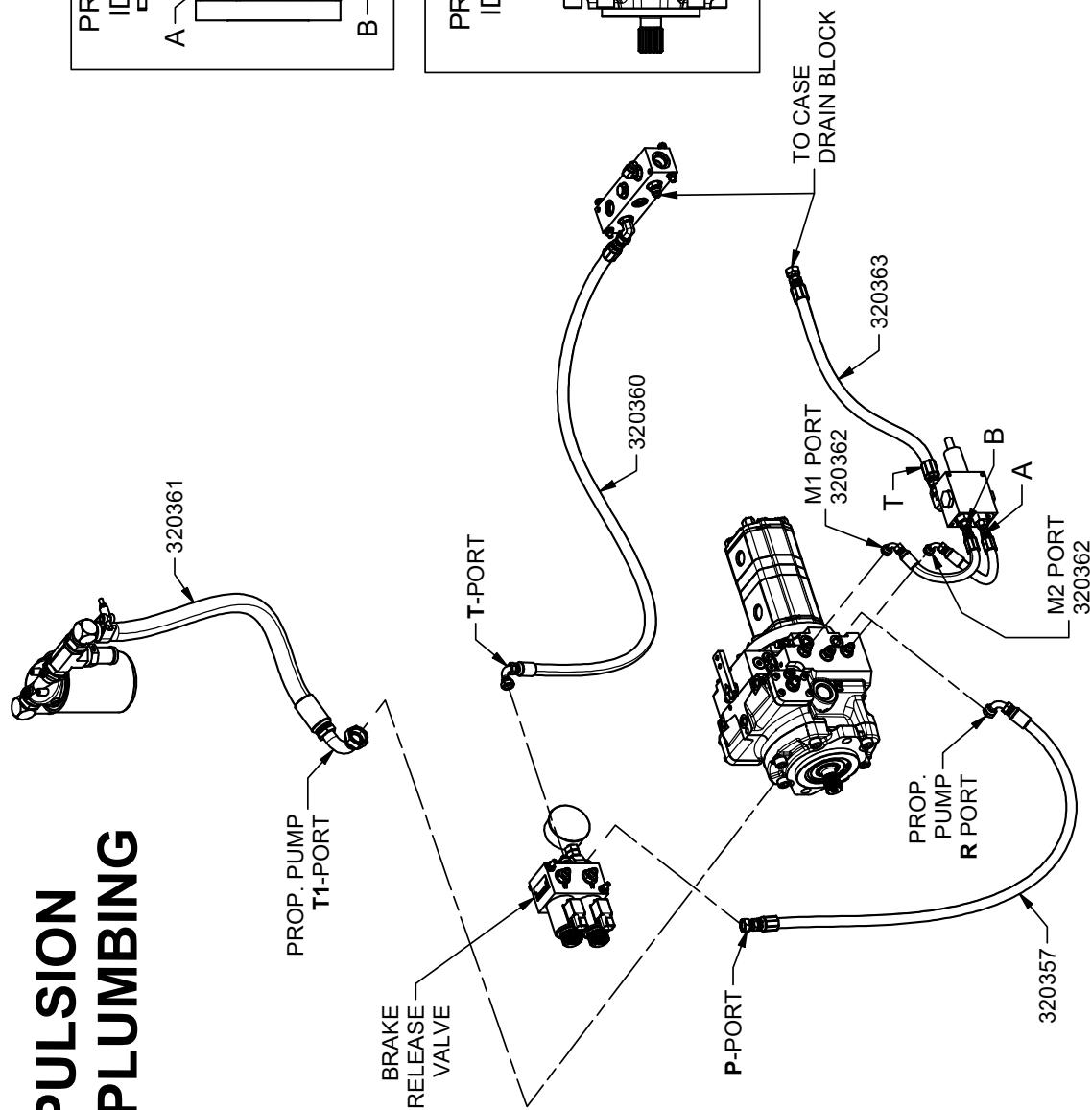
## PROPELLION SUCTION & DRAIN PLUMBING



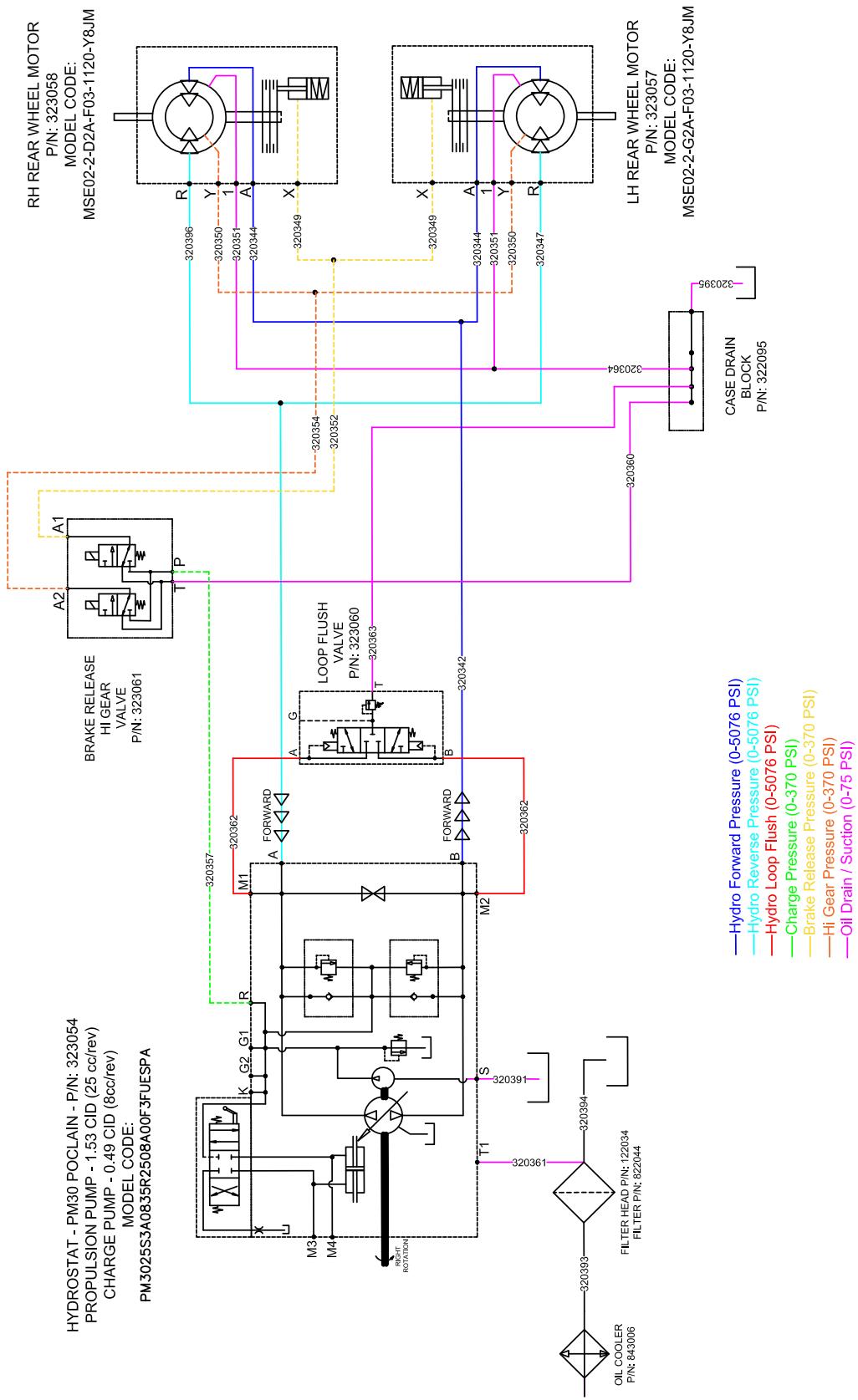
# **REAR WHEEL MOTOR PLUMBING**



# PROPELLION PUMP PLUMBING



# SWEeper PROPULSION SCHEMATIC - 2WD



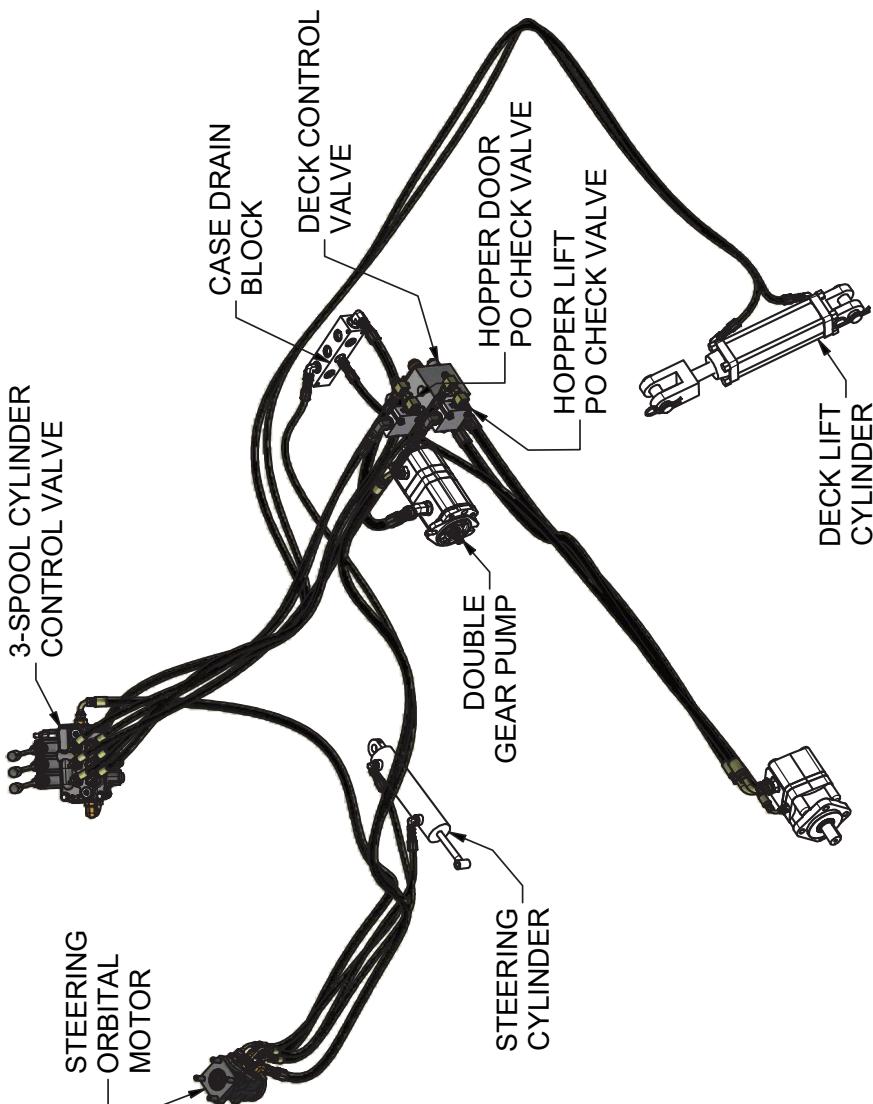
5-17-2021

305098

REV: A

HYDRAULIC SCHEMATIC  
SHOWN ON PAGE 5.10

ITEM	QTY	PART #	DESCRIPTION	ITEM	QTY	PART #	DESCRIPTION
1	8	110264	BOLT, 10-24 X .5 STAINLESS, PHILLIPS	39	1	502087	Cap, Center Steering
2	6	110290	NUT, 1/4-20 WIZ FLANGE	40	1	502088	Nut, Steering Wheel, 13/16-20 UNEF
3	2	110434	BOLT, 1/4-20 X 0.5, WIZ FLANGE	41	1	552002	STEERING WHEEL
4	4	110437	BOLT, 3/8-16 X 0.75, WIZ FLANGE	42	1	820158	DECK VALVE
5	4	110474	BOLT, 1/4-20 X 1-1/2				
6	2	110529	BOLT, 5/16-18 X 4.5				
7	4	110588	NUT, 1/2-13 WIZ FLANGE				
8	5	110606	NUT, 5/16-18 WIZ FLANGE				
9	4	110640	Hex Nut M10				
10	4	110645	NUT, 3/8-16 WIZ FLANGE				
11	4	110689	WASHER, 10mm LOCK				
12	8	110999	Nut, 10-24 U-Type, .025"-.125" panel				
13	4	111055	STUD, M10 X 1.5 X 42 GRADE 8.8				
14	3	111151	Hex Cap 5-16x2, 1/4 UNC				
15	4	112070	Bolt, 1/2-13 X 1.25 in Carriage				
16	4	120092	ADAPTER, 6MJ-6MJ-6MB				
17	1	120134	ADAPTER, 6MJ-8MB90				
18	1	120143	ADAPTER, 12MJ-10MB				
19	2	120216	ADAPTER, 6MJ-6FJX-6MJ				
20	2	120222	ADAPTER, 6MJ-6MB90				
21	1	120239	ADAPTER, 6MJ-8MB				
22	2	120249	ADAPTER, 4MJ-6MB				
23	1	120251	ADAPTER, 10MJ-10MB				
24	1	120319	ADAPTER, 6MJ-6MB				
25	2	120398	ADAPTER, REST 6MJ-6MB, .047				
26	2	120446	ADAPTER, 8MJ-10MB				
27	2	120689	Adapter, 6MB90-6FB				
28	6	120739	ADAPTER, 4MJ-8MB				
29	2	130012	CLAMP, ADEL AC28-265 HOLE				
30	1	302079	COLUMN ASSY, TILT STEERING				
31	1	311726	MOUNT, STEERING COLUMN				
32	2	311737	PLATE, ORBITAL COVER				
33	1	315353	WELDMENT, OPERATOR CONSOLE				
34	2	322074	VALVE, PO CHECK				
35	2	322075	VALVE BODY, 3-WAY SAE-6				
36	1	322097	VALVE ASSY, THREE SPOOL				
37	1	323046	MOTOR, STEERING ORBITAL				
38	1	323062	HOSE KIT, HAWK MACHINE HYDRAULIC				



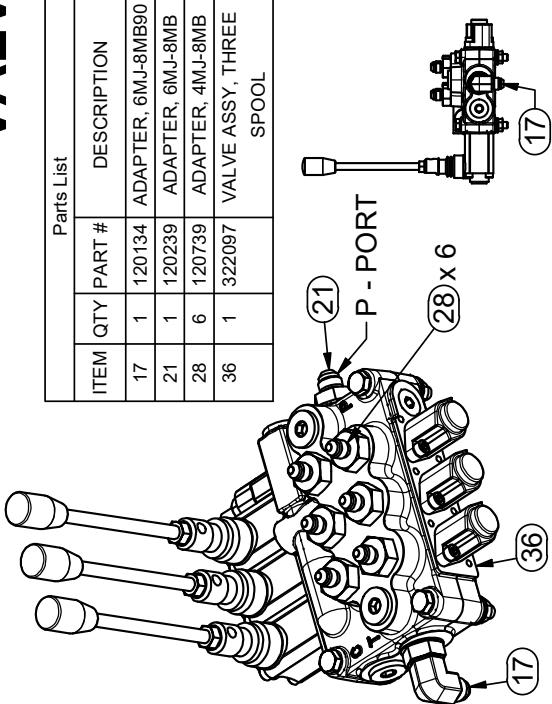
## MACHINE HYDRAULIC INSTALLATION

5-17-2021

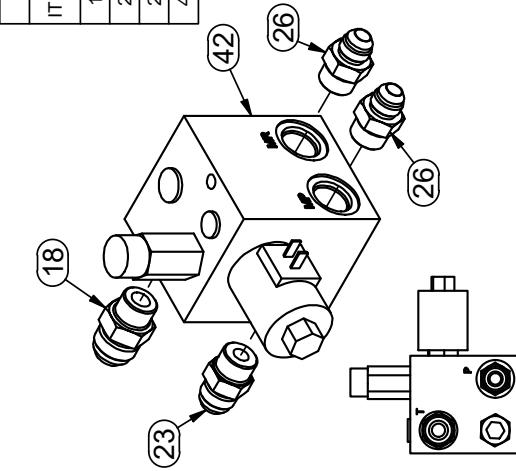
### Three Spool Valve Assembly

## VALVE ASSEMBLIES

Parts List			
ITEM	QTY	PART #	DESCRIPTION
17	1	120134	ADAPTER, 6MJ-6MB90
21	1	120239	ADAPTER, 6MJ-8MB
28	6	120739	ADAPTER, 4MJ-8MB
36	1	322097	VALVE ASSY, THREE SPOOL



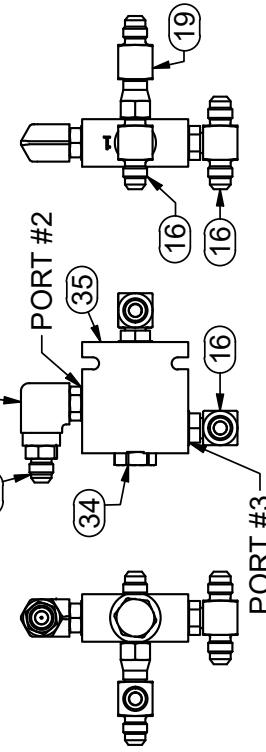
### Deck Valve Assembly



Parts List			
ITEM	QTY	PART #	DESCRIPTION
18	1	120143	ADAPTER, 12MJ-10MB
23	1	120251	ADAPTER, 10MJ-10MB
26	2	120446	ADAPTER, 8MJ-10MB
42	1	820158	DECK VALVE

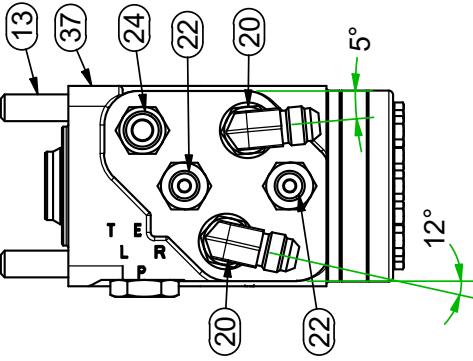
Parts List		
PART #	DESCRIPTION	
522163	COIL, 12VDC DEUTSCH	
820230	VALVE, COUNTER BALANCE	
820231	RELIEF, 3000 PSI PRESSURE	
820232	VALVE, N.O. SOLENOID CARTRIDGE	

### P.O. Check Valve Assembly X 2



Parts List			
ITEM	QTY	PART #	DESCRIPTION
16	4	120092	ADAPTER, 6MJ-6MJ-6MB
19	2	120216	ADAPTER, 6MJ-6FJX6MJ
25	2	120398	ADAPTER, REST 6MJ-6MB, .047
27	2	120689	Adapter, 6MB90-6FB
34	2	322074	VALVE, PO CHECK
35	2	322075	VALVE BODY, 3-WAY SAE-6

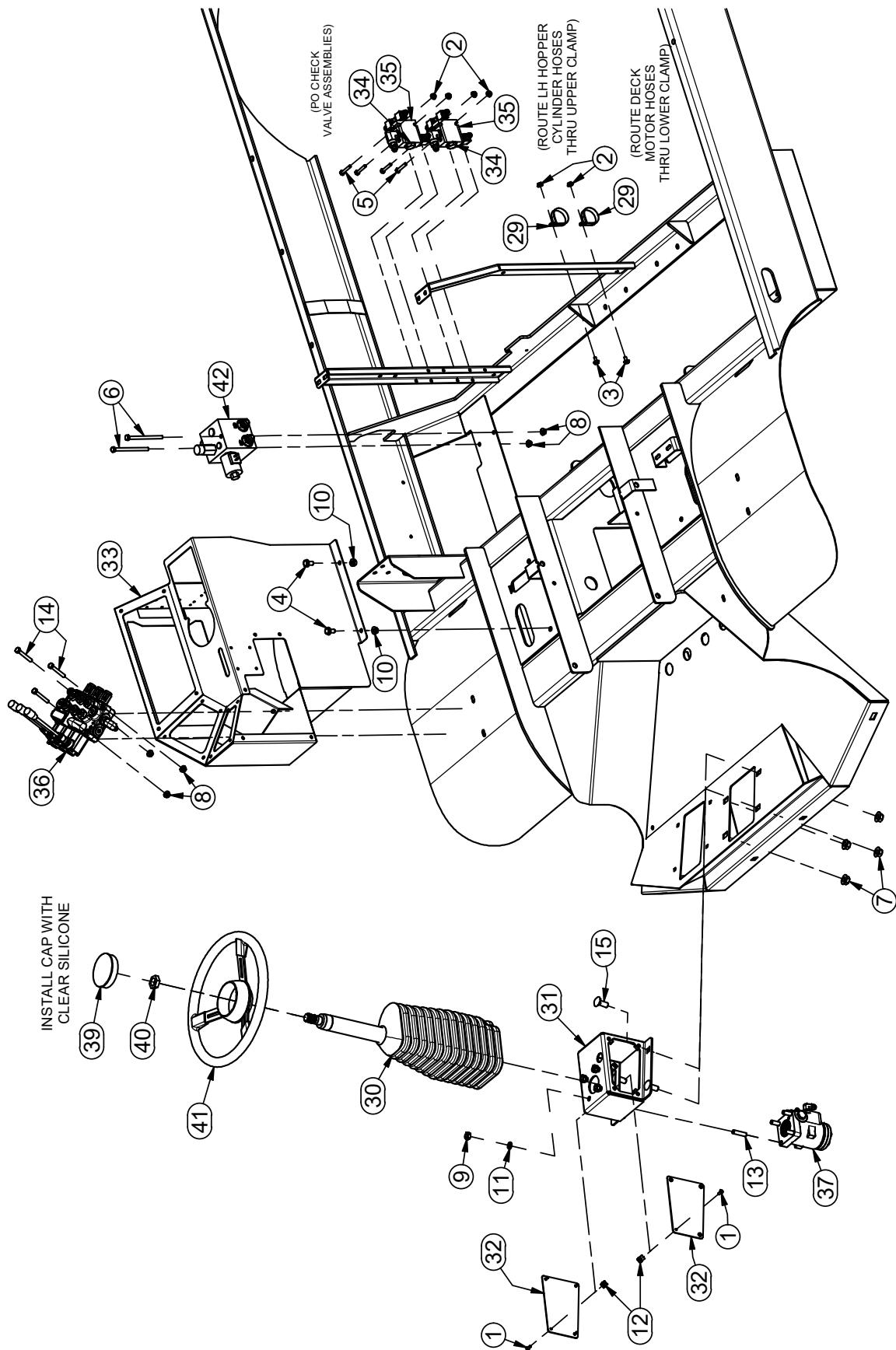
### Steering Orbital Assembly



Parts List			
ITEM	QTY	PART #	DESCRIPTION
13	4	111055	STUD, M10 X 1.5 X 42 GRADE 8.8
20	2	120222	ADAPTER, 6MJ-6MB90
22	2	120249	ADAPTER, 4MJ-6MB
24	1	120319	ADAPTER, 6MJ-6MB
37	1	323046	MOTOR, STEERING ORBITAL

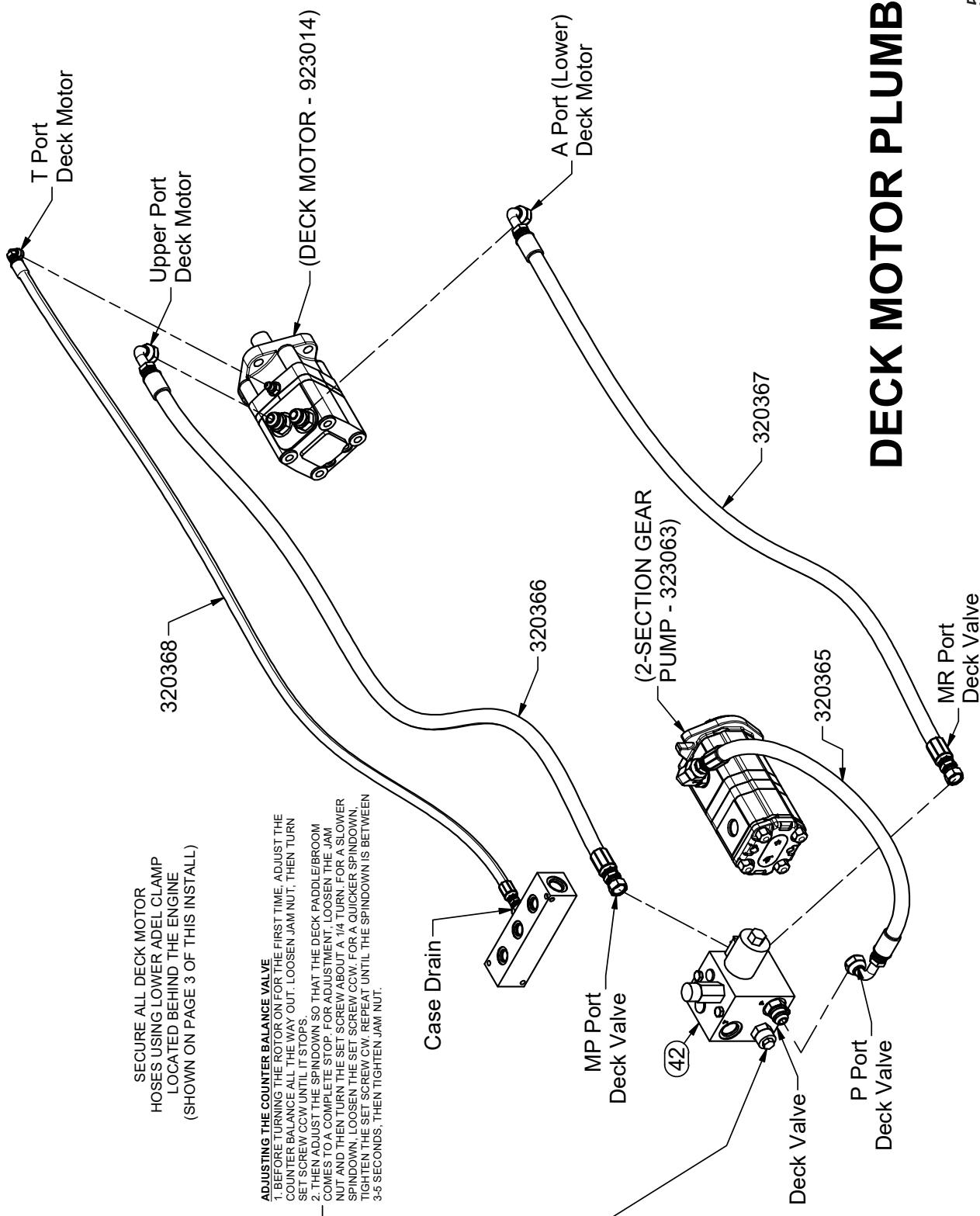
305098

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## VALVE INSTALLATION

5-17-2021



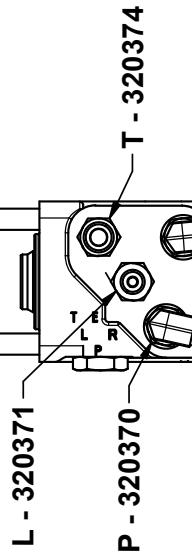
## DECK MOTOR PLUMBING

5-17-2021

305098

REV: A

STEERING ORBITAL PORT IDENTIFICATION  
(HOSE 320373 THAT ATTACHES TO E PORT IS SHOWN ON NEXT PG)



T Port Steering Orbital

R Port Steering Orbital

L Port Steering Orbital

(STEERING CYLINDER - 323010)

Rod End Steering Cylinder

Base End Steering Cylinder

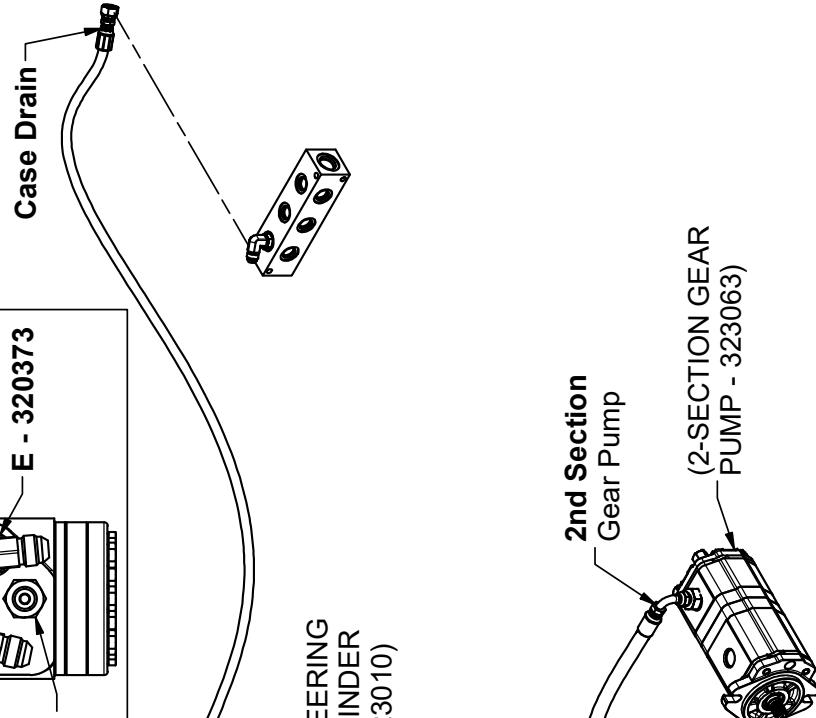
320371

320372

P Port Steering Orbital

320370

2nd Section Gear Pump  
(2-SECTION GEAR PUMP - 323063)

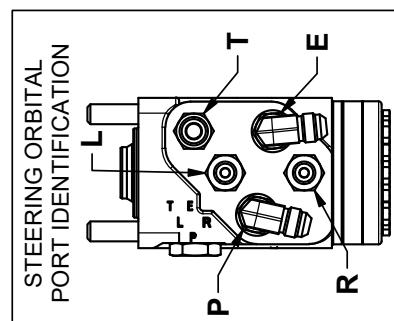
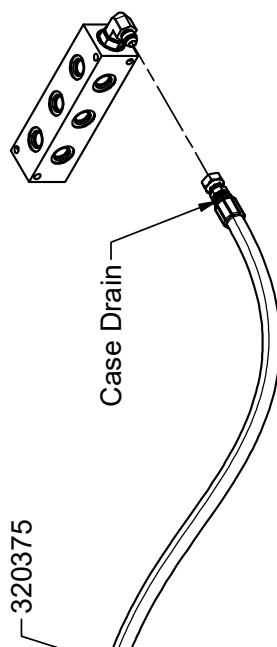
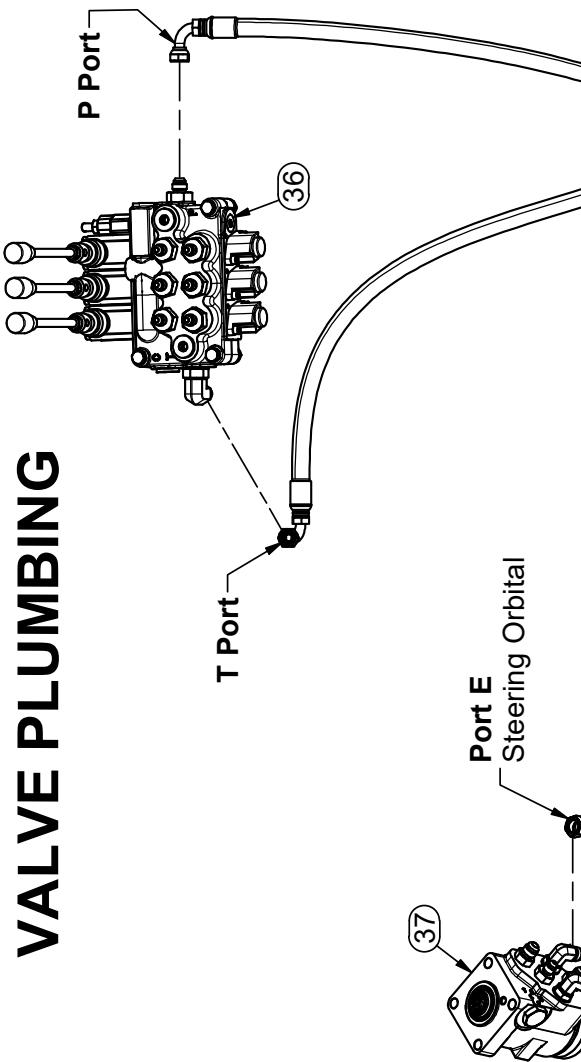
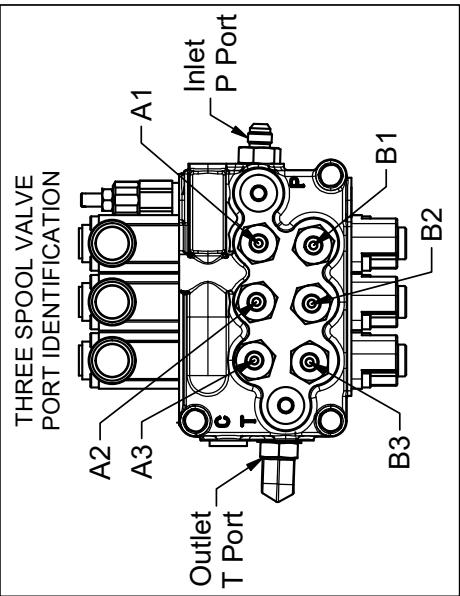


## STEERING PLUMBING

# THREE SPOOL VALVE PLUMBING

305098

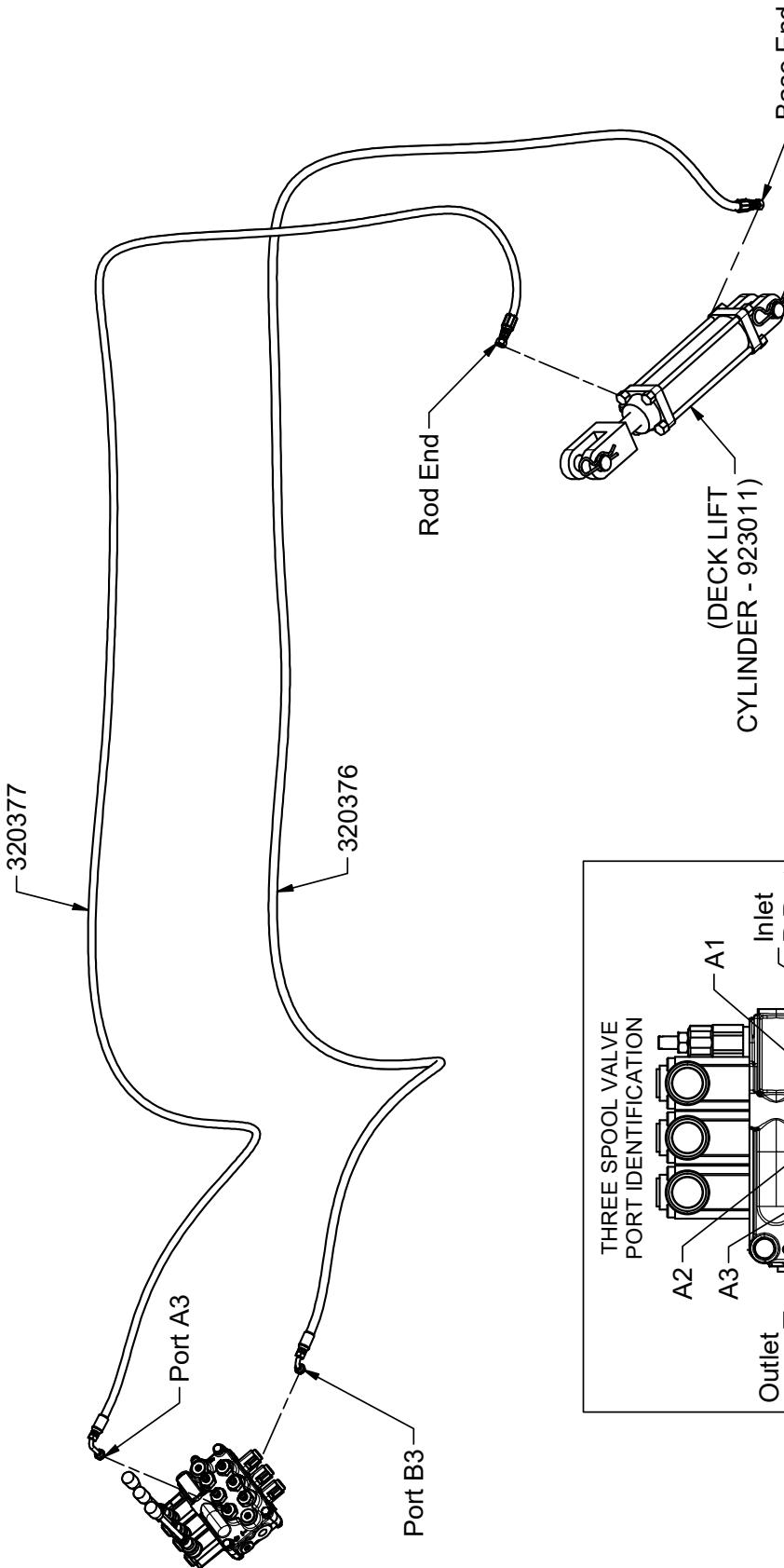
REV: A



5-17-2021

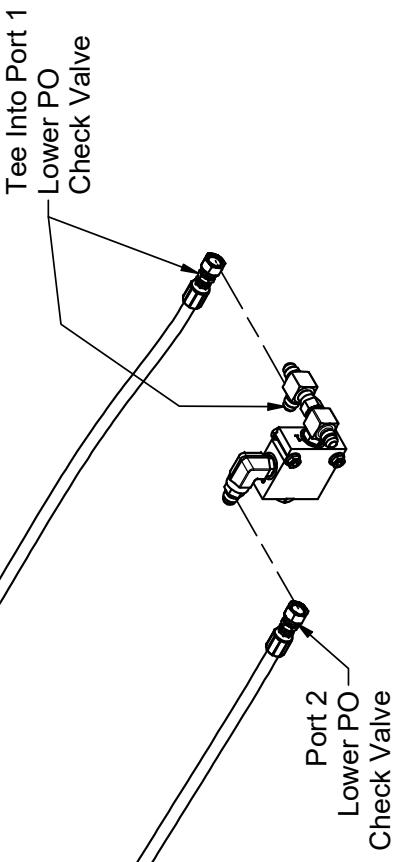
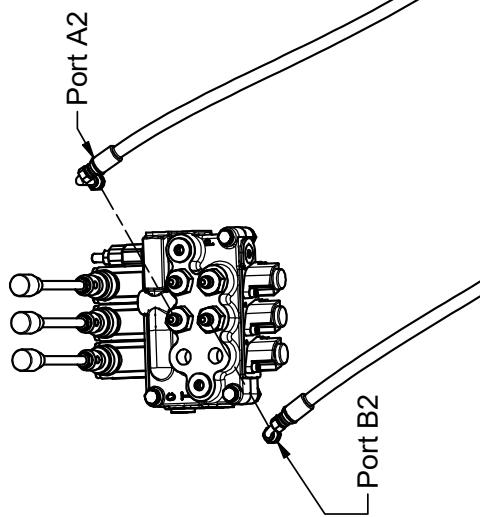
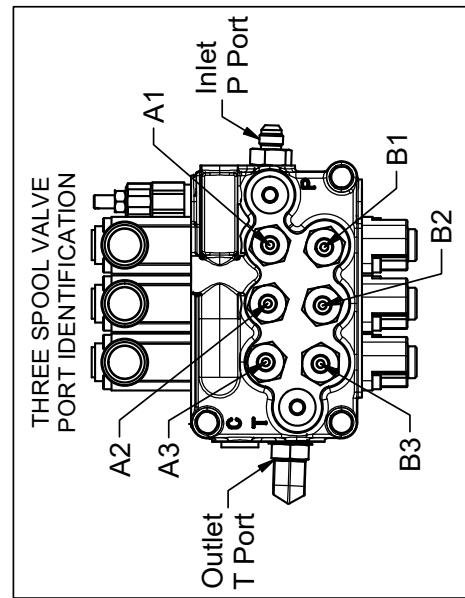
## DECK LIFT PLUMBING

305098 REV: A



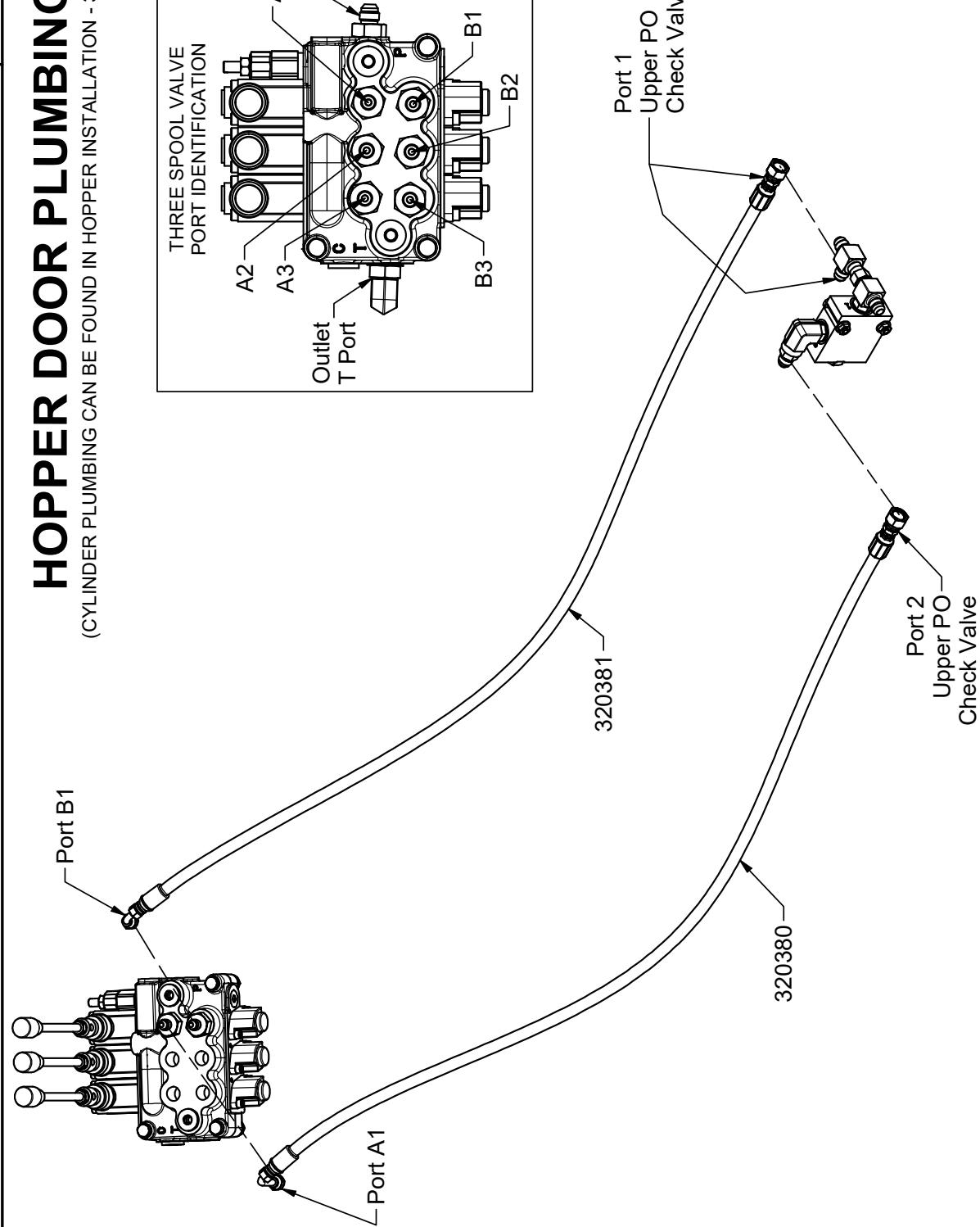
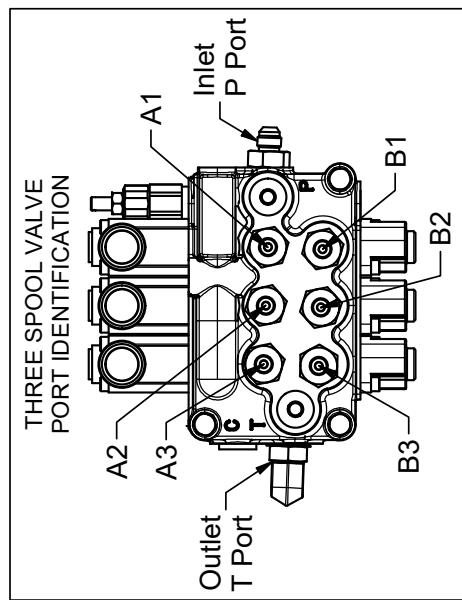
# HOPPER LIFT PLUMBING

(CYLINDER PLUMBING CAN BE FOUND IN HOPPER INSTALLATION - 305075)

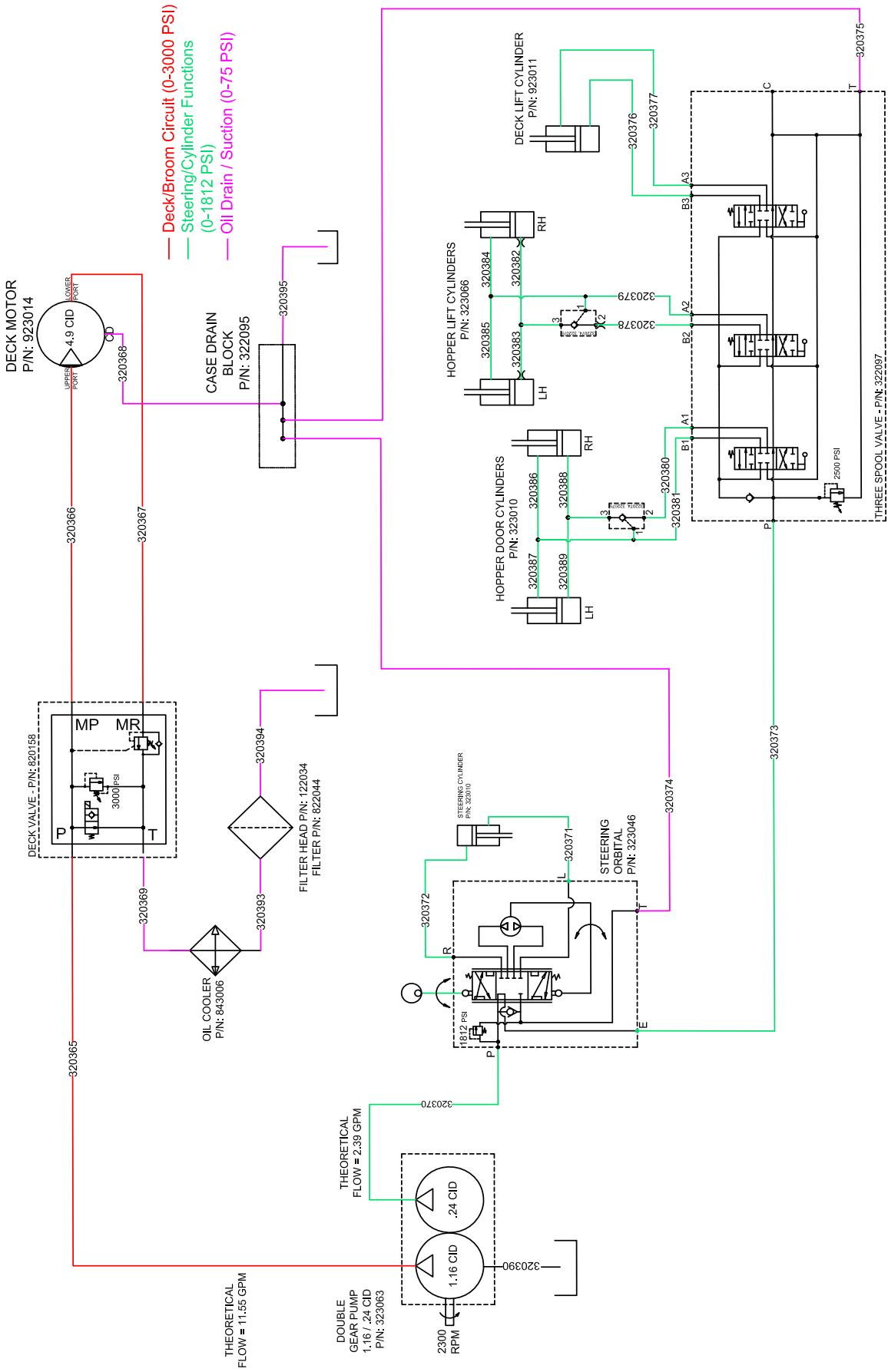


# HOPPER DOOR PLUMBING

(CYLINDER PLUMBING CAN BE FOUND IN HOPPER INSTALLATION - 305075)



## **SWEeper MACHINE HYDRAULIC SCHEMATIC**



06/03/20

5-17-2021

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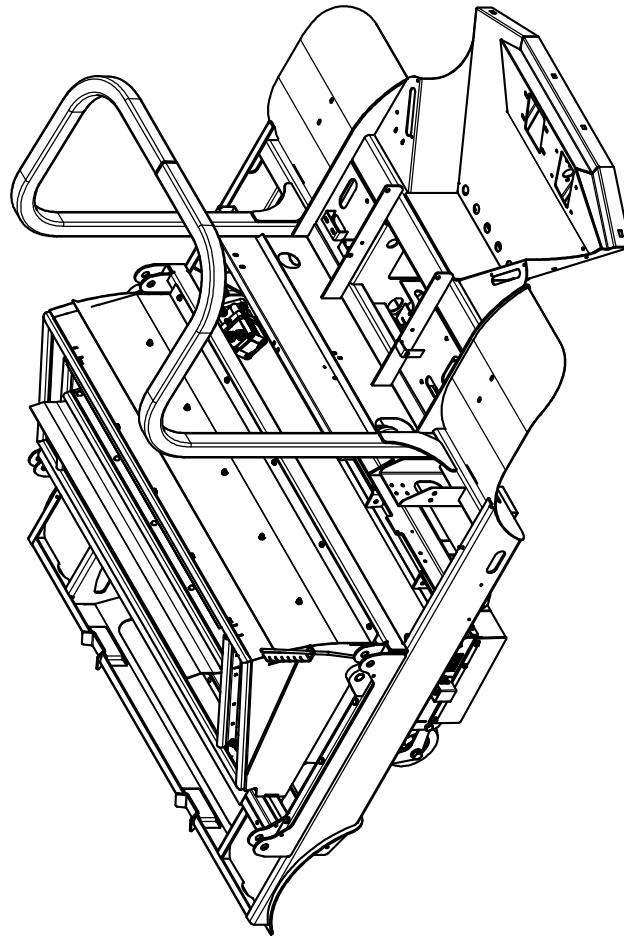
**HK4200**

**HARPER®**  
TURF EQUIPMENT

# DECK INSTALLATION

305118

REV. NC

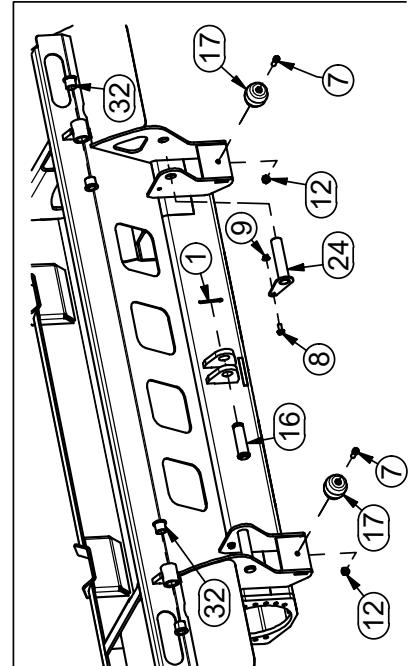
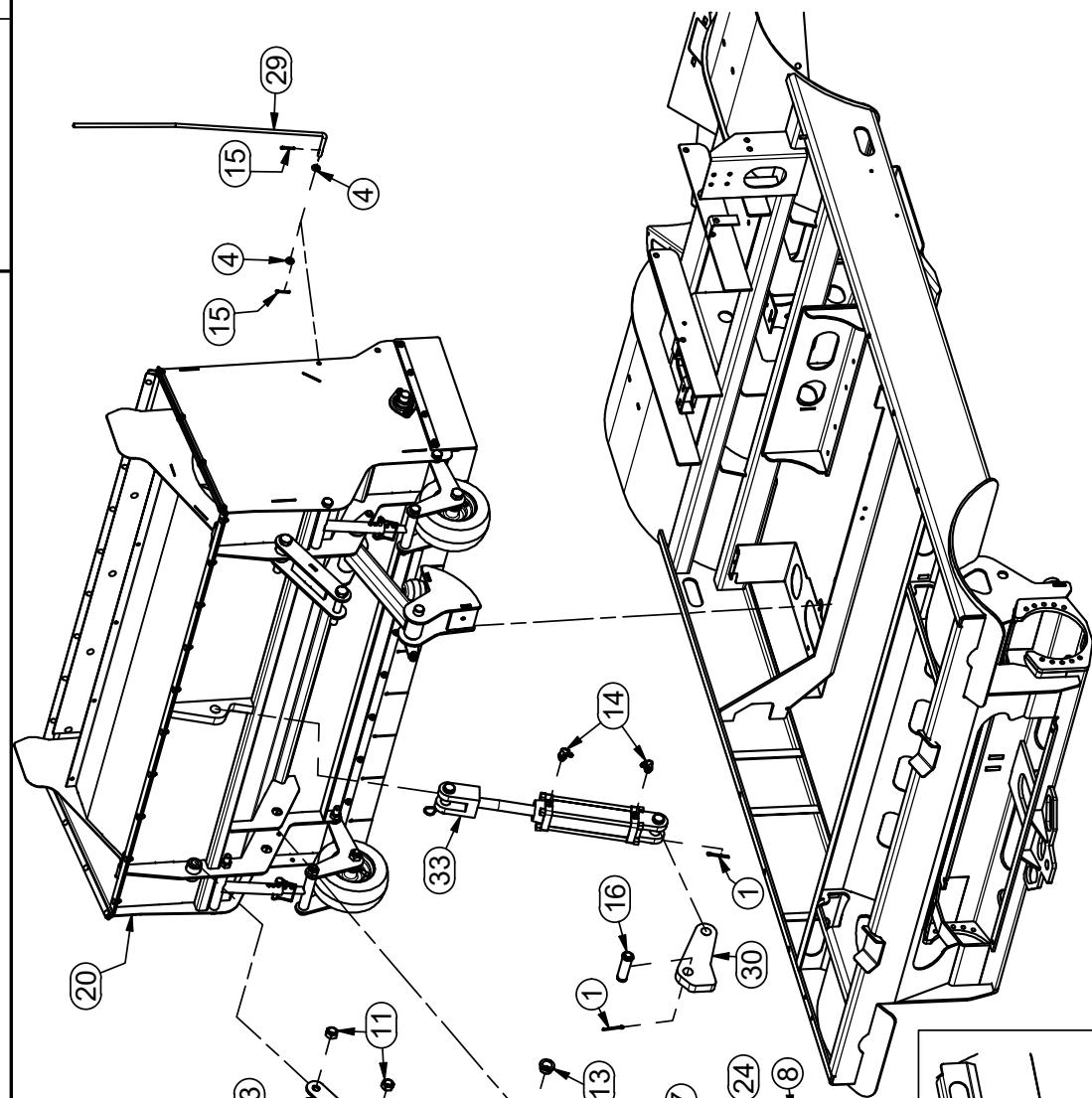


SIMILAR TO 305085

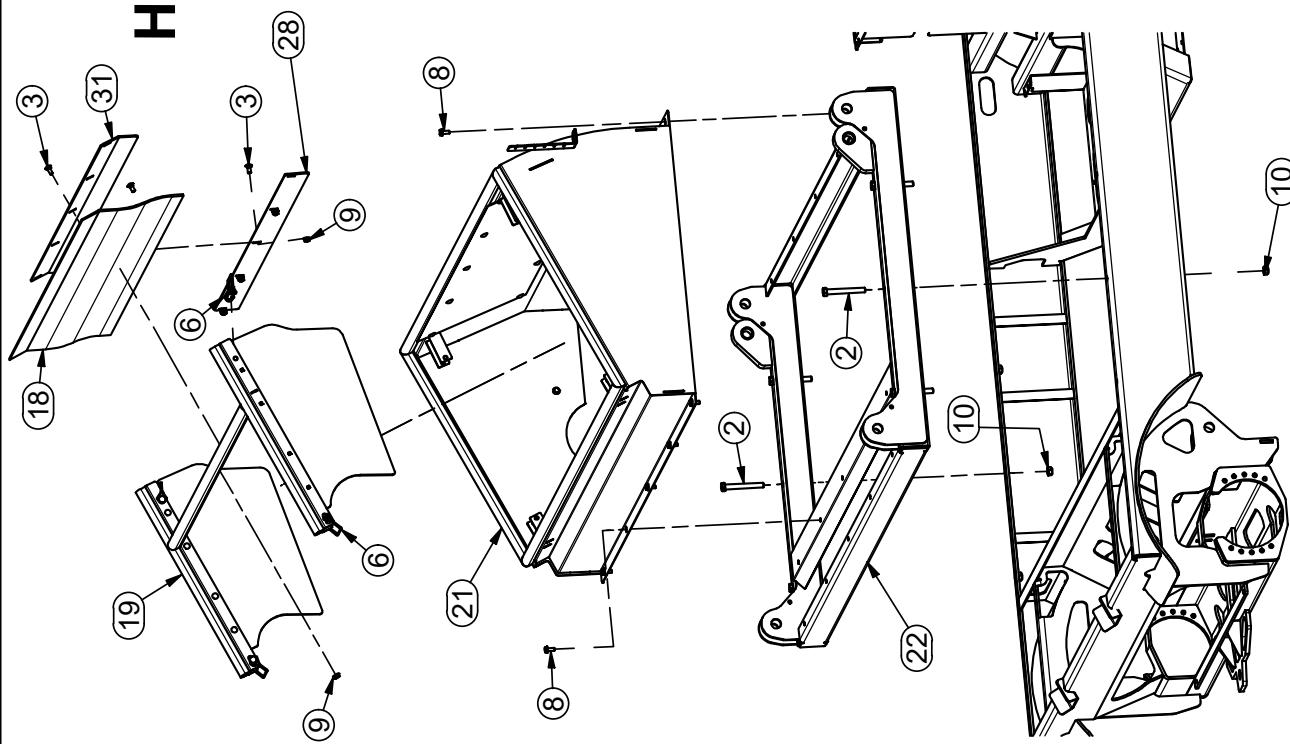
Parts List			
ITEM	QTY	PART #	DESCRIPTION
1	2	100465	COTTER PIN, 3/16 X 1.75
2	6	110003	BOLT, 1/2-13 X 4.0
3	10	110020	Bolt, 5/16-18 X 0.75 in Carriage
4	2	110155	WASHER, 3/8" FLAT SAE
5	4	110170	BOLT, 3/4-10 X 4.5
6	4	110304	PIN, LOCK 3/8 X 2.5 SQ
7	4	110395	BOLT, 3/8-16 X 1.0 SHCS
8	14	110444	BOLT, 5/16-18 X 0.75, WIZ FLANGE
9	14	110606	NUT, 5/16-18 WIZ FLANGE
10	6	110615	NUT, 1/2-13, UNITORQUE LOCK
11	4	110625	NUT, 3/4-10, UNITORQUE LOCK
12	4	110645	NUT, 3/8-16 WIZ FLANGE
13	8	110851	BUSHING - (GUS, 1-1/4 x 1 x 3/4 fng
14	2	120220	ADAPTER, 4MU-6MB90
15	2	200029	COTTER PIN, 5/32 X 1
16	1	220480	PIN
17	4	302130	Spring, 300lb Rubber
18	1	302148	Seal, Loop
19	1	305070	ASSY, DECK CHUTE
20	1	305114	ASSY, DECK, US
21	1	305115	ASSY, DECK TRANSITION, US
22	1	315315	WELDMENT, HOPPER MOUNT
23	2	315346	WELDMENT, UPPER DECK LINK
24	2	315373	WELDMENT, LOWER DECK PIN, 4.50
25	2	315374	WELDMENT, RUBBER SPRING
26	2	315375	WELDMENT, LOWER DECK LINK
27	2	315376	WELDMENT, LOWER DECK PIN, 6.25
28	1	317179	CUTOFF, AIR FLOW
29	1	317267	ROD, DECK HEIGHT INDICATOR
30	1	317282	LINK, DECK LIFT
31	1	317357	Guide, Loop Seal
32	4	800128	BUSHING, (GUS, FOOT PEDAL
33	1	923011	Cylinder, 2 X 6, -6 SAE Cross

# DECK LINKAGE INSTALLATION

5-17-2021



# HOPPER TRANSITION & HOPPER MOUNT INSTALLATION

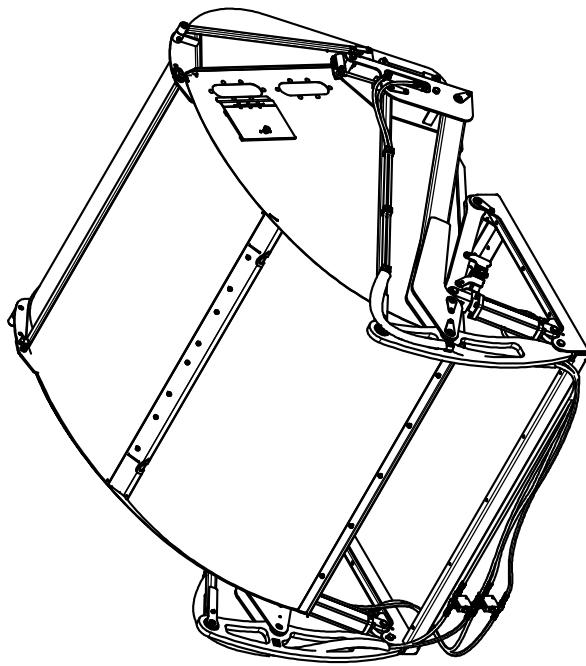


Parts List			
ITEM	QTY	PART #	DESCRIPTION
2	6	110003	BOLT, 1/2-13 X 4.0
3	10	110020	Bolt, 5/16-18 X 0.75 in Carriage
6	4	110304	PIN, LOCK 3/8 X 2.5 SQ
8	14	110444	BOLT, 5/16-18 X 0.75, WIZ FLANGE
9	14	110606	NUT, 5/16-18 WIZ FLANGE
10	6	110615	NUT, 1/2-13, UNITORQUE LOCK
18	1	302148	Seal, Loop
21	1	305115	ASSY, DECK TRANSITION US
19	1	305070	ASSY, DECK CHUTE
22	1	315315	WELDMENT, HOPPER MOUNT
28	1	317179	CUTOFF, AIR FLOW
31	1	317357	Guide, Loop Seal

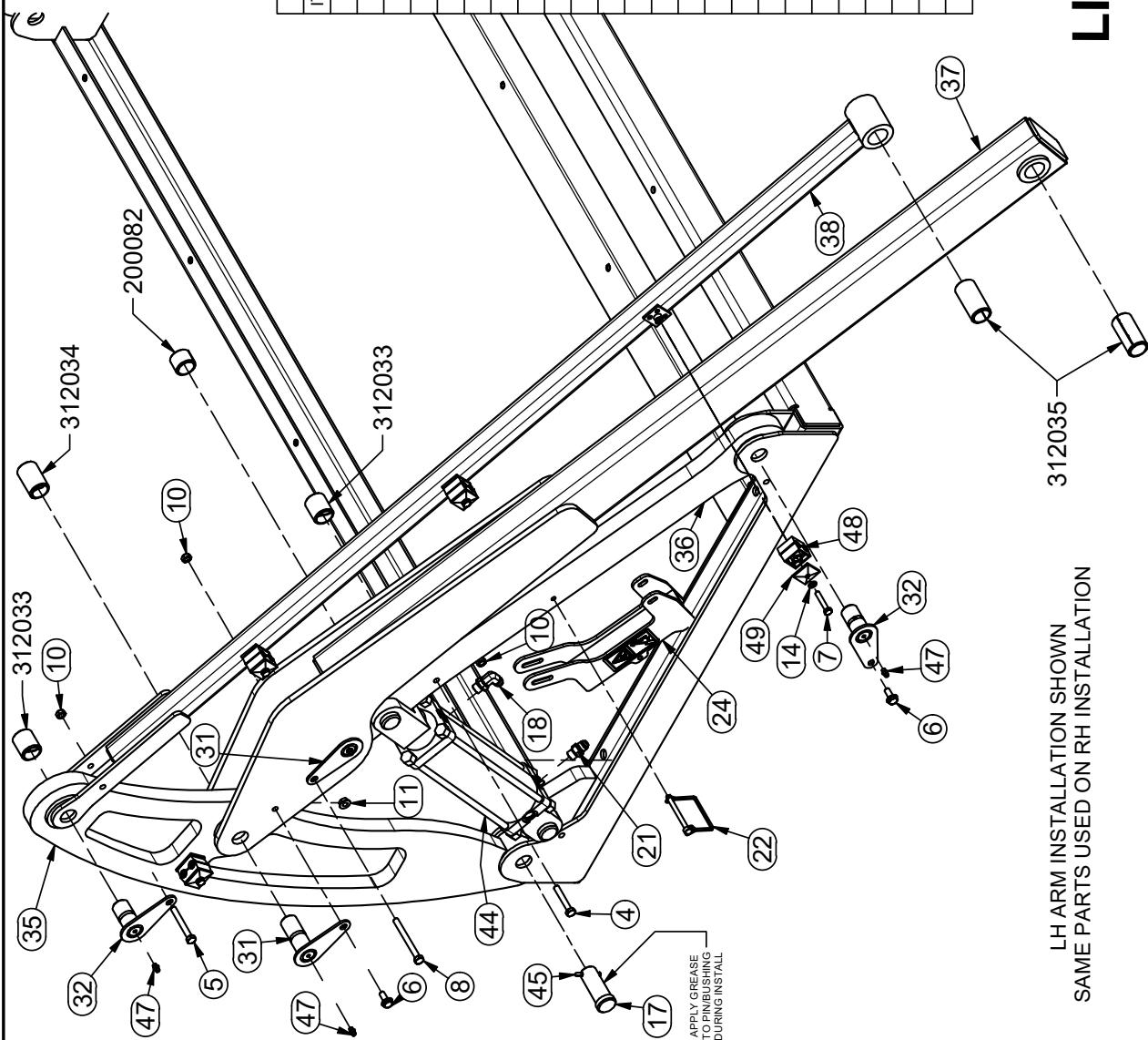
305117

REV: NC

Parts List				Parts List			
ITEM	Q'TY	PART #	DESCRIPTION	ITEM	Q'TY	PART #	DESCRIPTION
1	8.75'	100354	WEBBING, NYLON 1.50ID, SHEATH	37	2	315412	WELDMENT, LOWER LIFT LINK, US
2	2	102137	CLEVIS PIN, 1/2 X 1.75	38	2	315413	WELDMENT, UPPER LIFT LINK, US
3	4	110025	BOLT, 5/16-11 X 5.5	39	2	315416	WELDMENT, DOOR LIFT LINK, US
4	4	110378	BOLT, 5/16-18 X 2.0	40	2	317216	CLEVIS PIN, 3/4 X 3.75, W/ HOLE
5	2	110396	BOLT, 5/16-18 X 2.5	41	4	317320	SPACER, CYLINDER
6	8	110444	BOLT, 5/16-18 X 0.75, WIZ FLANGE	42	2	323010	CYLINDER - STEERING, 1-3/4 X 6
7	8	110474	BOLT, 1/4-20 X 1-1/2	43	1	323065	HOSE KIT, HAWK HOPPER HYDRAULIC
8	2	110536	BOLT, 5/16-18 X 3.25	44	2	323066	Cylinder, 2.5 X 8, -6 SAE, Hopper
9	2	110576	BOLT, 5/8-11 X 1.5 GR 5	45	2	500184	COTTER PIN, 3/16 X 1.25
10	10	110600	NUT, 5/16-18, UNI TORQUE LOCK	46	2	500230	GREASE ZERK, 1/4-28 90deg
11	8	110606	NUT, 5/16-18 WIZ FLANGE	47	14	510174	GREASE ZERK, 1/4-28 ST
12	6	110639	NUT, 5/8-11, UNI TORQUE LOCK	48	8	522104	DOUBLE HOSE CLAMP
13	2	110665	WASHER, 5/16" FLAT STANDARD	49	8	522105	DOUBLE COVERPLATE
14	8	110667	WASHER, 1/4" LOCK				
15	2	111190	Bolt, 3/8 x 2 Shoulder				
16	2	112131	Clevis Pin, 1/2" x 1-1/2", ZINC-PLATED STEEL				
17	2	112133	Clevis Pin, 1" x 2-3/16", ZINC-PLATED STEEL				
18	2	120222	ADAPTER, 6MJ-6MB90				
19	4	120233	ADAPTER, 4MJ-4MB				
20	4	120266	ADAPTER, 4MJ-4FJX90				
21	2	120398	ADAPTER, REST6MJ-6MB, .047				
22	2	140016	PIN, LOCK, 1/4 X 2-1/4, SQ WIRE				
23	4	200029	COTTER PIN, 5/32 X 1				
24	2	305103	Assy, Safety Latch, ISO				
25	1	305113	Assy, Hopper Door, ISO, US				
26	1	305116	ASSY, HOPPER, US				
27	1	312022	CLIP, HAIRPIN 3/32 x 1.625				
28	2	315257	PIN WELDMENT, HOPPER DOOR				
29	2	315327	WELDMENT, DOOR LIFT PIVOT LINK				
30	4	315331	WELDMENT, HOPPER LIFT - 4.00"				
31	4	315332	WELDMENT, LIFT LINK PIN - 2.87"				
32	4	315333	WELDMENT, LIFT LINK PIN - 2.12"				
33	2	315383	Weldment, Door Arm End				
34	1	315393	WELDMENT, VERTICAL LIFT LINK, US				SIMILAR TO 305075
35	2	315410	WELDMENT, CYLINDER LIFT LINK, US				
36	2	315411	WELDMENT, CYLINDER LIFT LINK, US				

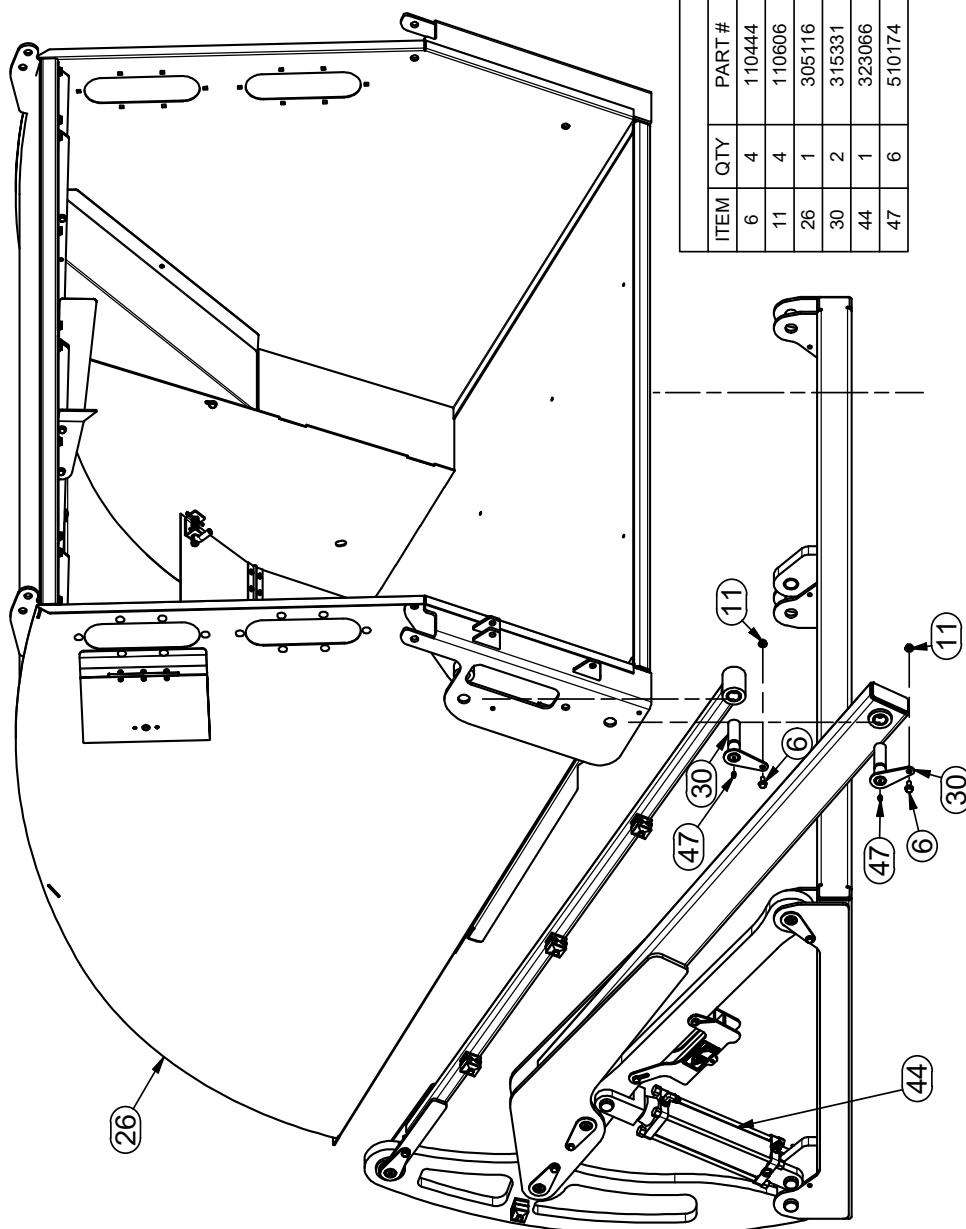


## HOPPER INSTALLATION



LH ARM INSTALLATION SHOWN  
SAME PARTS USED ON RH INSTALLATION

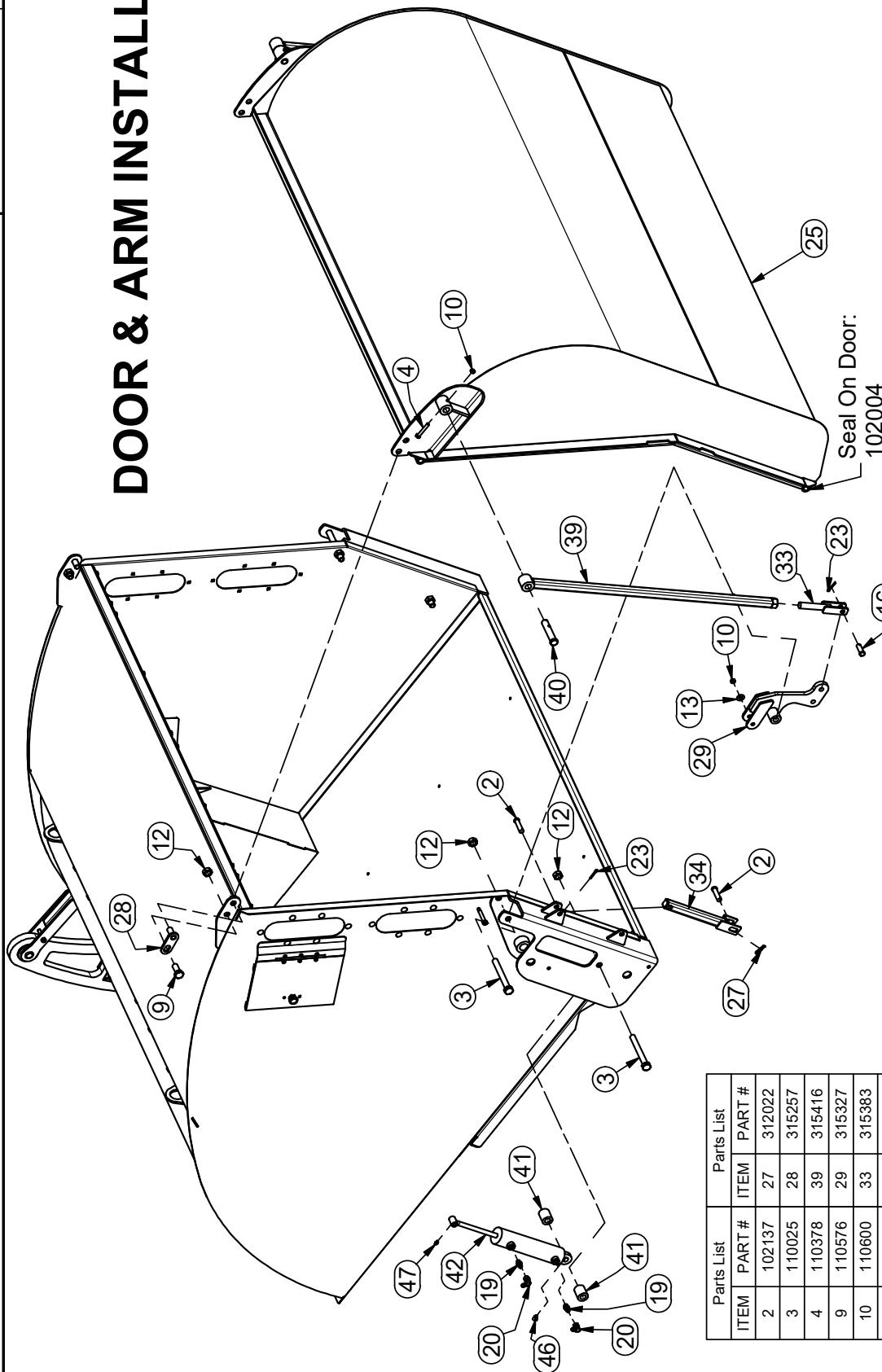
## LIFT ARM ASSEMBLY



Parts List			
ITEM	QTY	PART #	DESCRIPTION
6	4	110444	BOLT, 5/16-18 X 0.75, WIZ FLANGE
11	4	110606	NUT, 5/16-18 WIZ FLANGE
26	1	305116	ASSY, HOPPER, US
30	2	315331	WELDMENT, HOPPER LIFT - 4.00"
44	1	323066	Cylinder, 2.5 X 8, -6 SAE, Hopper
47	6	510174	GREASE ZERK, 1/4-28 ST

LH INSTALLATION SHOWN  
SAME PARTS USED ON RH INSTALLATION

# DOOR & ARM INSTALL

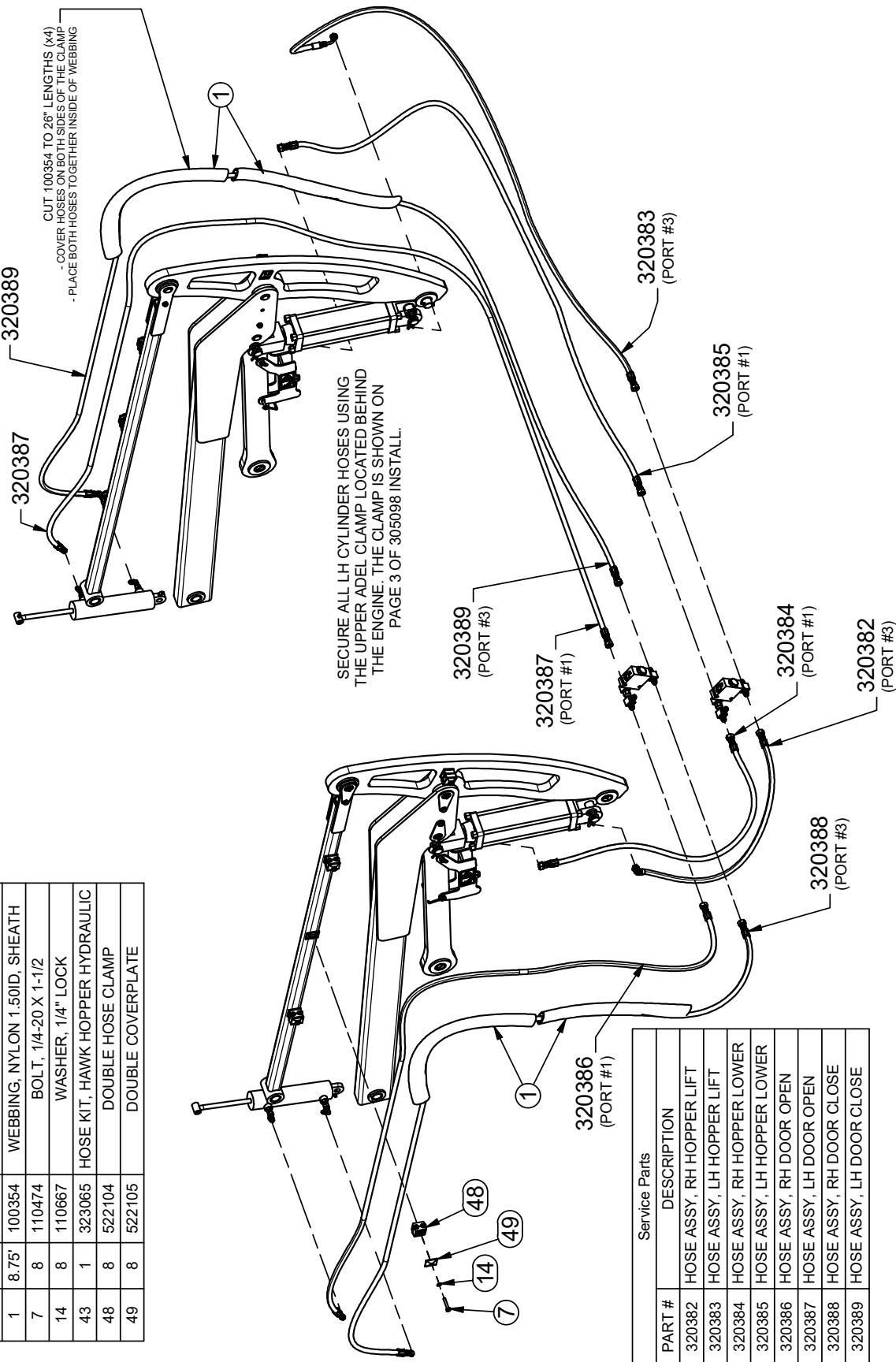


1. INITIALLY SET THE HOPPER DOOR LIFT LINK TO 36.5" (CTR TO CTR)
2. ADJUST AS NEEDED TO COMPRESS THE DOOR SEAL TO 0.5" AT THE BOTTOM OF THE DOOR

Parts List	
ITEM	PART #
2	102137
3	110025
4	110378
9	110576
10	110600
12	110639
13	110665
16	112131
19	120233
20	120266
23	200029
25	305113
ITEM	PART #
27	312022
28	315257
39	315416
29	315327
33	315383
34	315393
40	317216
41	317320
42	323010
46	500230
47	510174

# HOPPER CYLINDER PLUMBING

Parts List			
ITEM	QTY	PART #	DESCRIPTION
1	8.75'	100354	WEBBING, NYLON 1.50ID, SHEATH
7	8	110474	BOLT, 1/4-20 X 1-1/2
14	8	110367	WASHER, 1/4" LOCK
43	1	323065	HOSE KIT, HAWK HOPPER HYDRAULIC
48	8	522104	DOUBLE HOSE CLAMP
49	8	522105	DOUBLE COVERPLATE

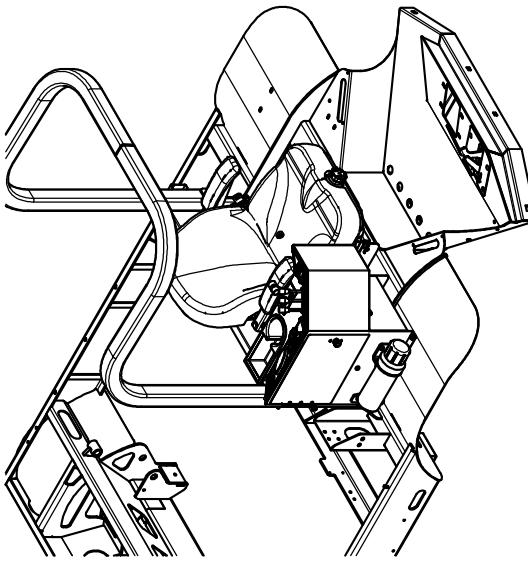


Parts List							Parts List						
ITEM	QTY	PART #	DESCRIPTION	ITEM	QTY	PART #	DESCRIPTION	ITEM	QTY	PART #	DESCRIPTION		
1	4'	100613	SEAL, RUBBER .50 X 187	37	1	305064	Assy, Console Panel, ISO	52	1	332063	HARNESS, INSTRUMENT PANEL		
2	2.5'	102072	TAPE, DOUBLE-SIDED AUTO, 1/2"X.045	38	1	311729	HINGE, 6" ALUMINUM W/ HOLES	53	1	332064	HARNESS, RELAY		
3	4	110020	Bolt, 5/16-18 X 0.75 in Carriage	39	1	315349	WELDMENT, FOOT PEDAL MOUNT	54	2	510112	COTTER PIN, 3/16 X 1		
4	12	110103	WASHER, #10 LOCK	40	1	315355	WELDMENT, FOOT PEDAL PIVOT	55	2	540075	BEARING, ROD END 1/4-28 W/STUD		
5	6	110119	NUT, 10-24 LOCK	41	1	317102	PANEL, LEVER	56	4	800128	BUSHING, IGUS, FOOT PEDAL		
6	17	110264	BOLT, 10-24 X .5 STAINLESS, PHILLIPS	42	1	317103	PANEL, DECK SWITCH	57	1	810886	LINKAGE, 1/4-28 FOOT PEDAL		
7	2	110404	BOLT, 3/8-16 X 1.75	43	1	317172	BASE, SEAT MOUNT	58	1	815094	WELDMENT, REV FOOT PEDAL PIVOT		
8	3	110437	BOLT, 3/8-16 X 0.75, WIZ FLANGE	44	1	317173	PIN, SEAT MOUNTING	59	2	832005	SWITCH, PADDLE, CARLING (29253)		
9	4	110468	BOLT, 1/4-20 X 0.75, WIZ FLANGE	45	1	317186	COVER, FOOT PEDAL	60	1	832018	SWITCH, SPDT, ON-ON		
10	10	110606	NUT, 5/16-18 WIZ FLANGE	46	1	317193	DOOR, CONSOLE ACCESS	61	6	832024	MOUNT, SWITCH (VMS)		
11	2	110621	NUT, 3/8-16, UNTORQUE LOCK	47	1	317195	PANEL, GAUGE & SWITCH	62	3	832033	HOLE PLUG (VHP)		
12	4	110630	NUT, 1/4-20 LOCK (NYLON INSERT)	48	2	317249	PIN, QUICK RELEASE	63	1	832088	MODULE, TIME DELAY, 1.75 SEC, 1804		
13	10	110631	NUT, 10-24 LOCK NYLON INSERT	49	1	332031	SWITCH, IGNITION	64	2	832082	ALARM, PANEL MOUNT, CONTINUOUS TONE		
14	2	110632	NUT, 1/4-28, UNTORQUE LOCK	50	1	332059	DISPLAY, MACHINE						
15	3	110645	NUT, 3/8-16 WIZ FLANGE	51	1	332060	HARNESS, MASTER						
16	6	110788	BOLT, 10-24 X .375 STAINLESS, PHILLIPS										
17	10	110834	SCREW, 10-24 X 3/4 SS PAN HEAD										
18	17	110835	NUT, 10-24 RIVET ALUMINUM										
19	2	110971	BOLT, 5/16-18 X .50 SHCS										
20	2	112051	POP RIVET, 1/8 X .275										
21	2	112119	ROLL PIN, 5/32 X 2 ZP										
22	2	112126	SPRING, COMP 3.0L X 0.6 OD X 045										
23	1	152004	HOLDER, MANUAL										
24	1	200020	CLAMP, ADEL AC22, 265 HOLE										
25	1	302015	HOLDER - CUP, MOLDED										
26	3	302017	CLEVIS - THROTTLE										
27	1	302078	SEAT, 13M SUSPENSION										
28	1	302124	CABLE, THROTTLE 60"										
29	1	302131	LATCH, SPRING										
30	1	302132	DECAL, MAIN CONSOLE										
31	1	302133	Decal, Hydraulics Panel										
32	1	302134	DECAL, BROOM PANEL										
33	1	302135	Decal, Throttle Panel										
34	1	302141	CABLE, PUSH/PULL 60"										
35	1	305061	Assy, Forward Foot Pedal										
36	1	305062	Assy, Reverse Foot Pedal										

Parts List

REV: C

305090

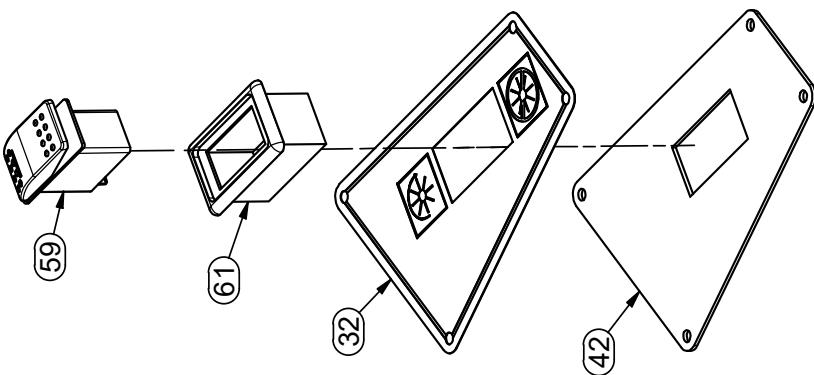


## OPERATOR STATION & ELECTRICAL ASSEMBLY

5-17-2021

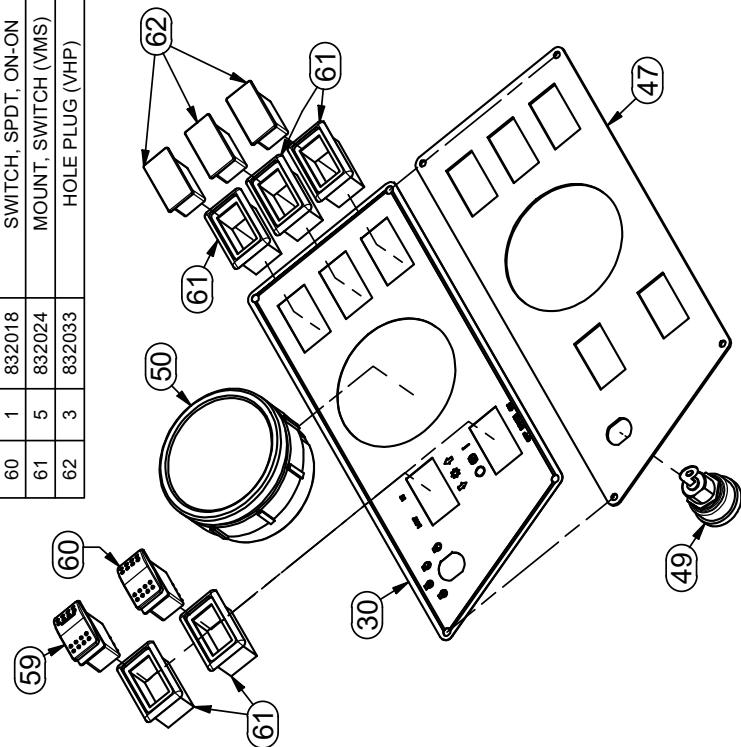
## DECK SWITCH PANEL ASSEMBLY

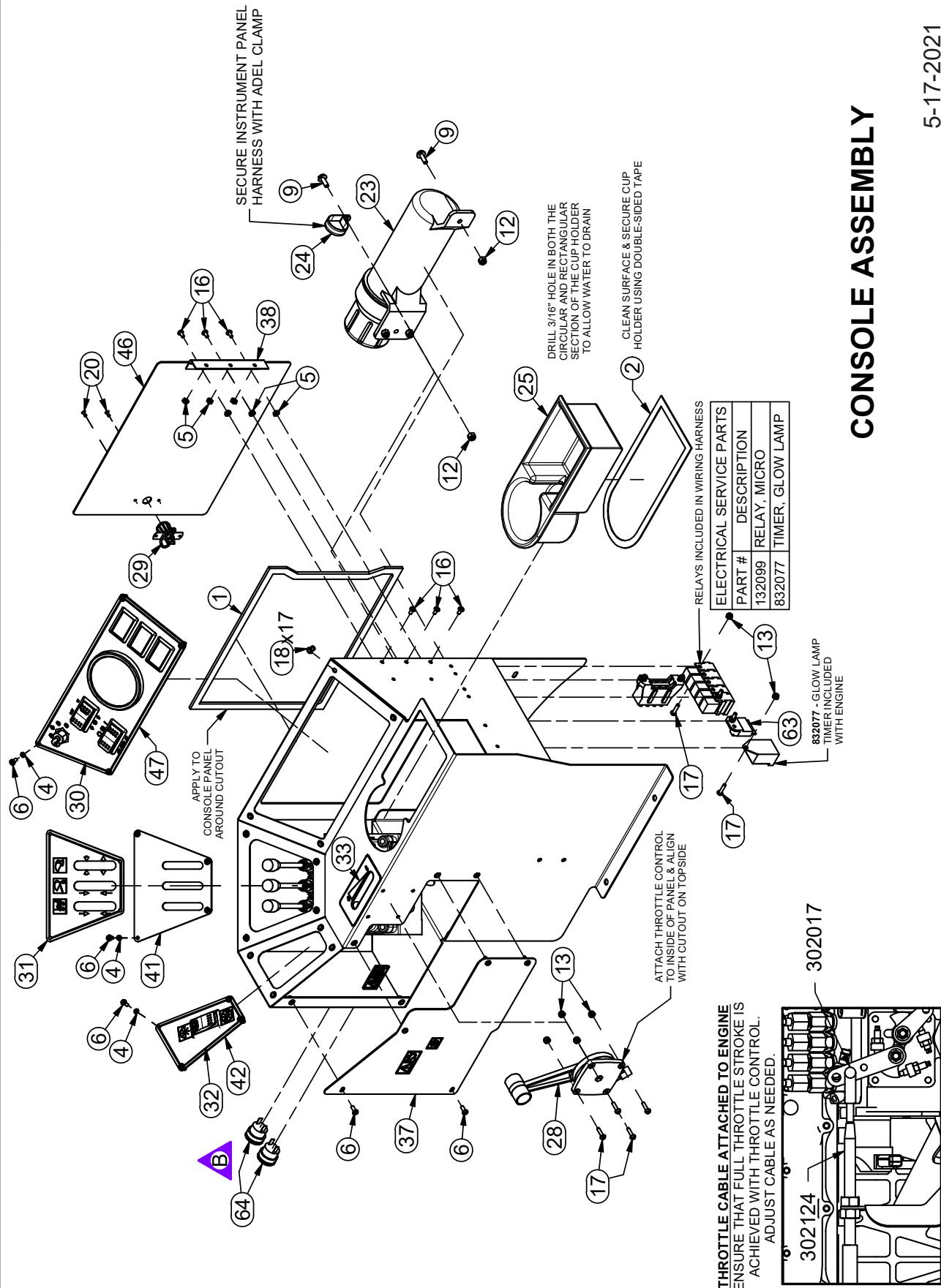
Parts List		
ITEM	QTY	PART #
32	1	302134 DECAL, BROOM PANEL
42	1	317103 PANEL, DECK SWITCH
59	1	832005 SWITCH, PADDLE, CARLING (29253)
61	1	832024 MOUNT, SWITCH (VMS)



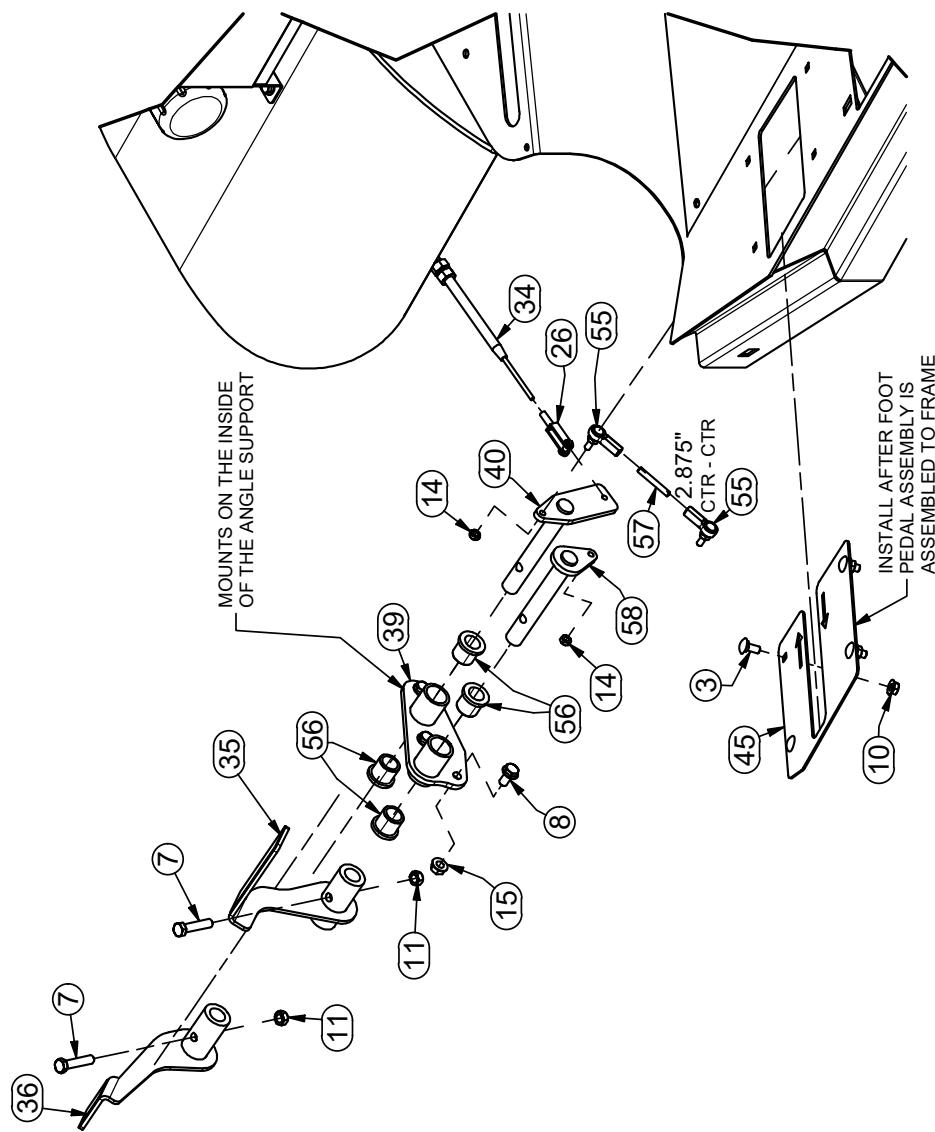
## INSTRUMENT PANEL ASSEMBLY

Parts List		
ITEM	QTY	PART #
30	1	302132 DECAL, MAIN CONSOLE
47	1	317195 PANEL, GAUGE & SWITCH
49	1	332031 SWITCH, IGNITION
50	1	332059 DISPLAY, MACHINE
59	1	832005 SWITCH, PADDLE, CARLING (29253)
60	1	832018 SWITCH, SPDT, ON-ON
61	5	832024 MOUNT, SWITCH (VMS)
62	3	832033 HOLE PLUG (VHP)



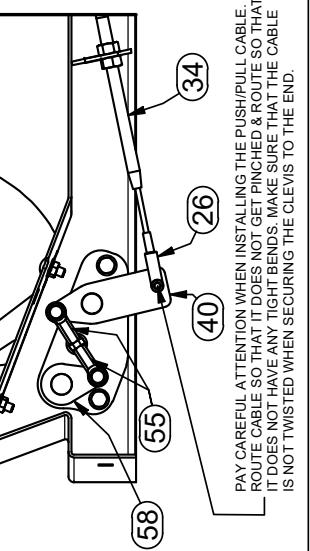
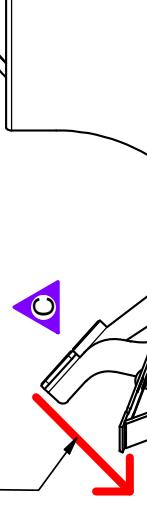


## FOOT PEDAL ASSEMBLY

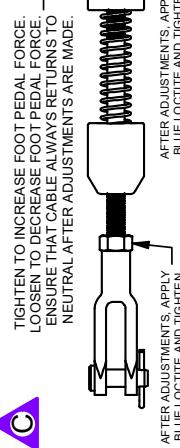


### FOOT PEDAL ASSEMBLY SIDE VIEW

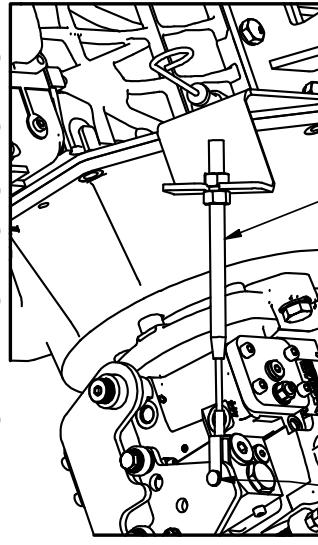
MEASURE FORWARD FOOT PEDAL FORCE USING A FISH SCALE OR SPRING SCALE. ENSURE THAT THE FORCE IS BETWEEN 20-35 LBS WHEN MACHINE IS OFF. SEE INSTRUCTIONS BELOW FOR ADJUSTING THE NEUTRAL SPRING.



### NEUTRAL RETURN SPRING ON PUMP



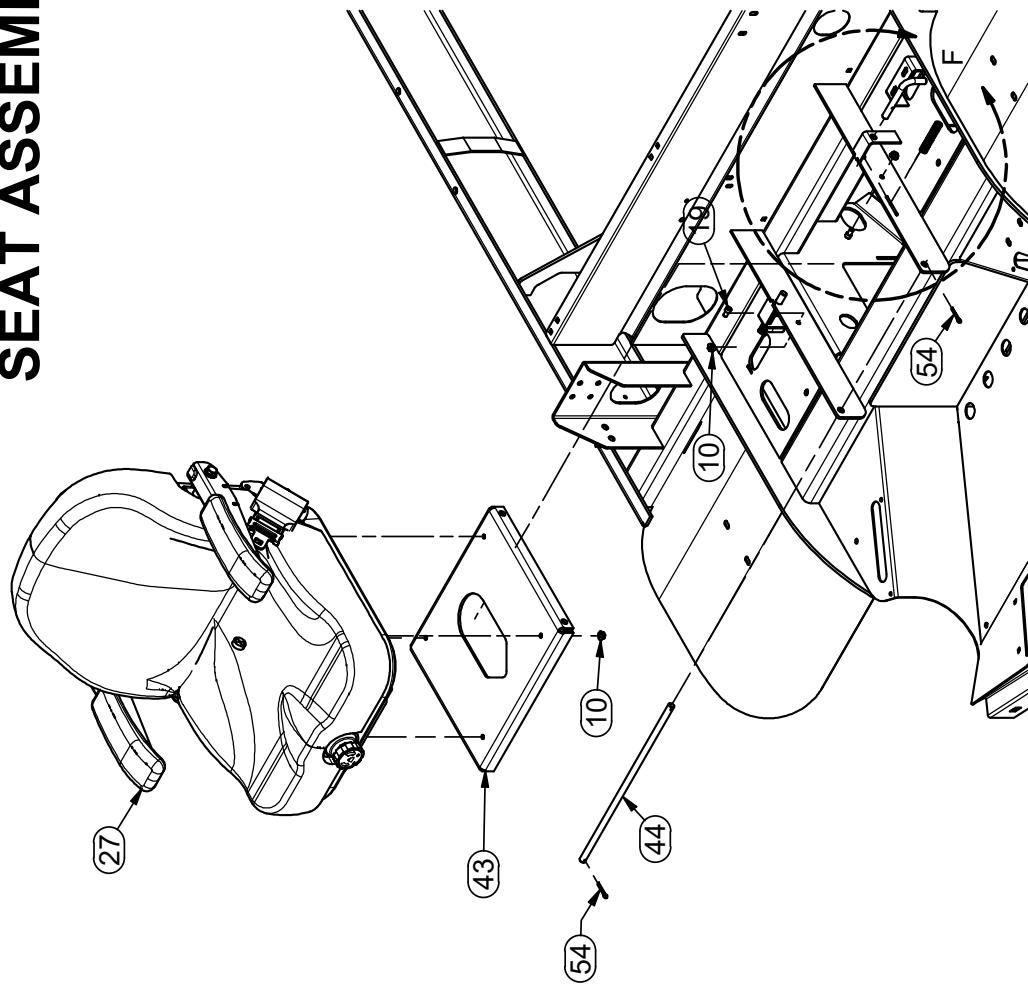
### PEDAL CABLE TO PROPULSION PUMP



302017

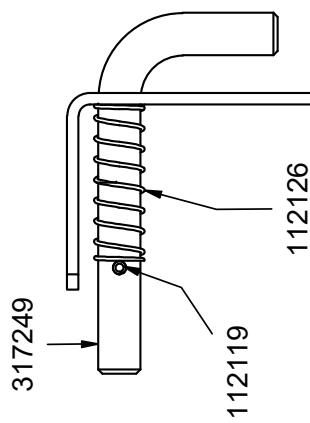
302141

# SEAT ASSEMBLY

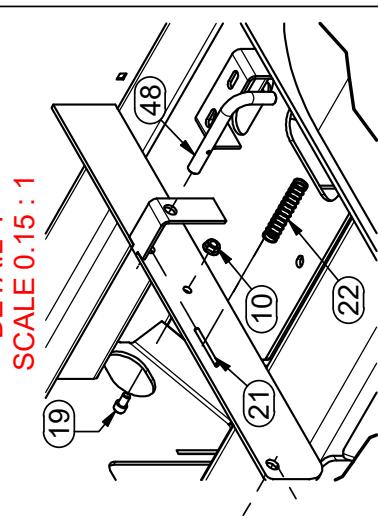


Parts List			
ITEM	QTY	PART #	DESCRIPTION
10	6	110606	NUT, 5/16-18 WIZ FLANGE
19	2	110971	BOLT, 5/16-18 X .50 SHCS
21	2	112119	ROLL PIN, 5/32 X 2 ZP
22	2	112126	SPRING, COMP 3.0L x 0.6 OD x .045
27	1	302078	SEAT, 13M SUSPENSION
43	1	317172	BASE, SEAT MOUNT
44	1	317173	PIN, SEAT MOUNTING
48	2	317249	PIN, QUICK RELEASE
54	2	510112	COTTER PIN, 3/16 X 1

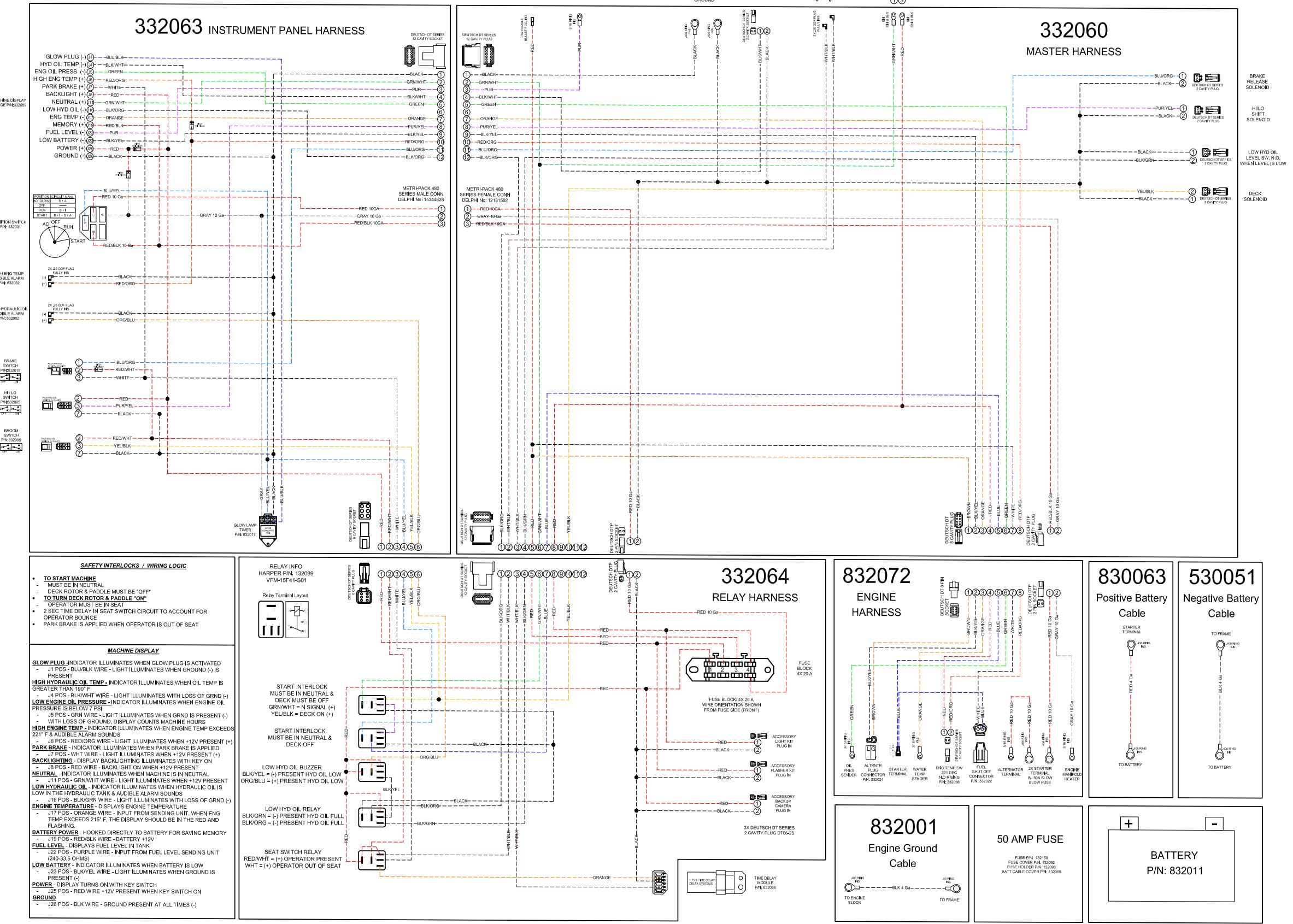
SEAT PIN SIDE VIEW



DETAIL F  
SCALE 0.15 : 1

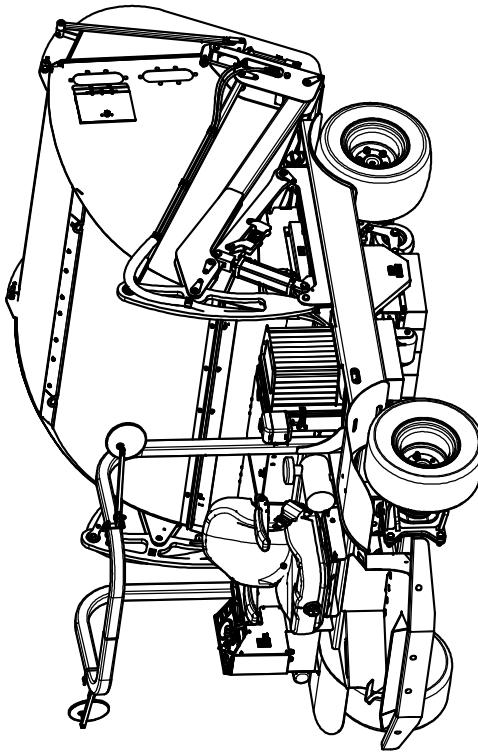


# SWEEPER WIRING SCHEMATIC DIAGRAM OVERVIEW





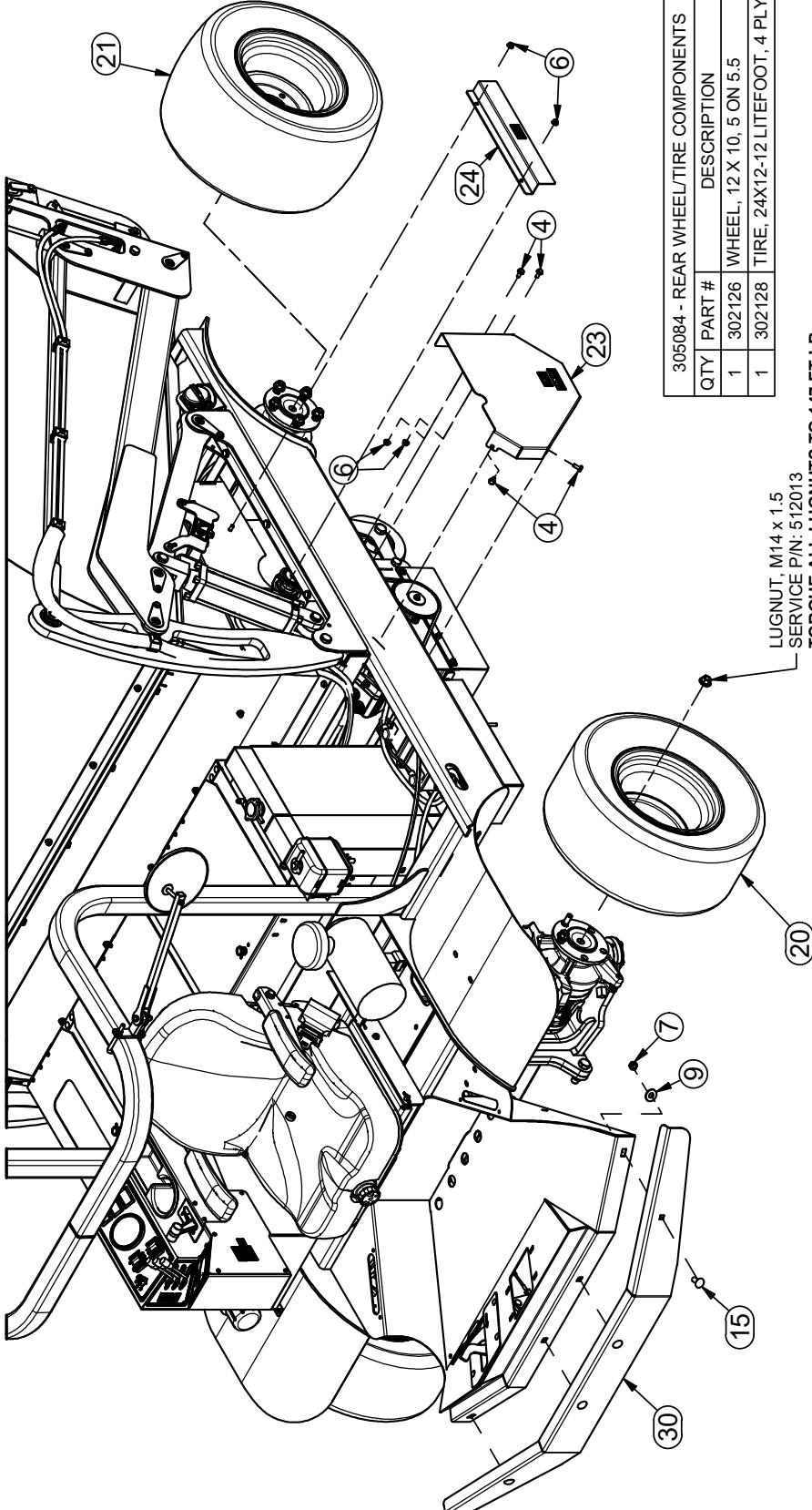
# MIRROR, TIRE, & SHIELD INSTALLATION



Parts List			
ITEM	QTY	PART #	DESCRIPTION
1	15 FT	100613	SEAL, RUBBER .50 X .187
2	18	110119	NUT, 10-24 LOCK
3	2	110400	BOLT, 3/8-16 X 2.0
4	4	110444	BOLT, 5/16-18 X 0.75, WIZ FLANGE
5	2	110474	BOLT, 1/4-20 X 1-1/2
6	4	110606	NUT, 5/16-18 WIZ FLANGE
7	4	110615	NUT, 1/2-13, UNITORQUE LOCK
8	4	110645	NUT, 3/8-16 WIZ FLANGE
9	4	110658	WASHER, 1/2" FLAT STANDARD
10	2	110667	WASHER, 1/4" LOCK
11	18	110788	BOLT, 10-24 X .375 STAINLESS, PHILLIPS
12	4	110826	NUT, 3/8-16 GR 5
13	2	111185	BOLT, SQUARE U, 3/8-16 X 2.50 X 4.0
14	6	112051	POP RIVET, 1/8 X .275
15	4	112070	Bolt, 1/2-13 X 1.25 in Carriage
16	4	211747	FRICITION WASHER 1.5"
17	3	302131	LATCH, SPRING
18	2	302139	Convex Mirror, 8" Round, Offset Ball-Stud
19	4	302140	Plug, Snap-in Square, 3/4"
20	2	305083	ASSY, FRONT TIRE
21	2	305084	ASSY, REAR TIRE
22	1	305101	ASSY, RH ENGINE SHIELD
23	1	305119	ASSY, LOWER DECK SHIELD, US
24	1	305120	ASSY, UPPER DECK SHIELD, US
25	3	311729	HINGE, 6" ALUMINUM W/HOLES
26	1	312022	CLIP, HAIRPIN 3/32 X 1.625
27	2	315385	WELDMENT, SWINGING MIRROR
28	2	315391	WELDMENT, MIRROR UBOLT MOUNT
29	2	317237	SHIELD, UPPER ENGINE
30	1	317244	BUMPER, FRONT

SIMILAR TO 305095

# BUMPER, DECK SHIELDS, & WHEEL/TIRE ASSEMBLY

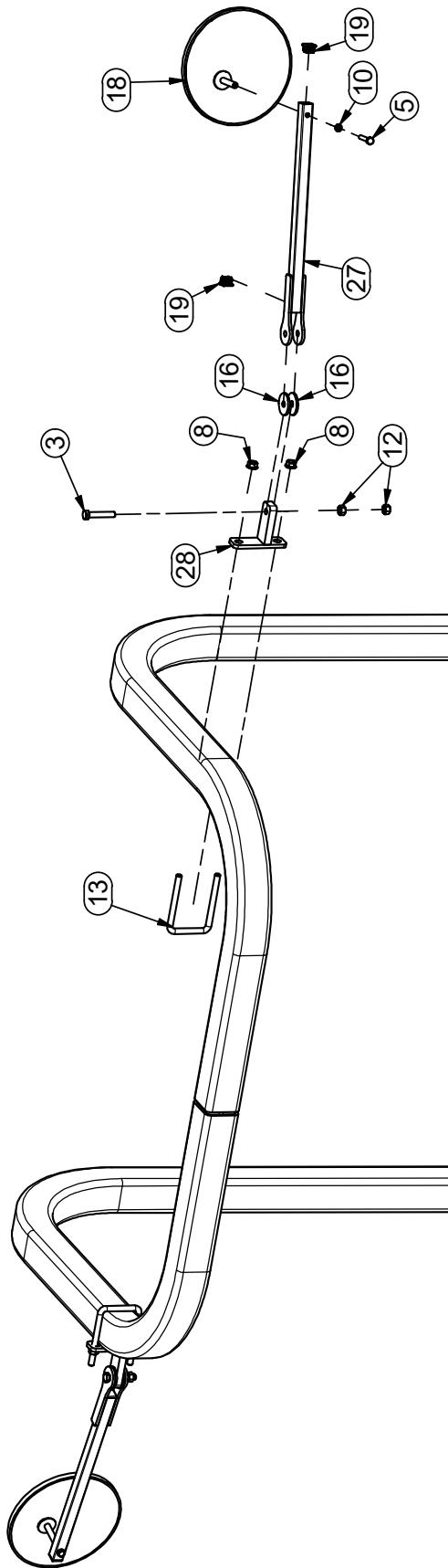


5-17-2021

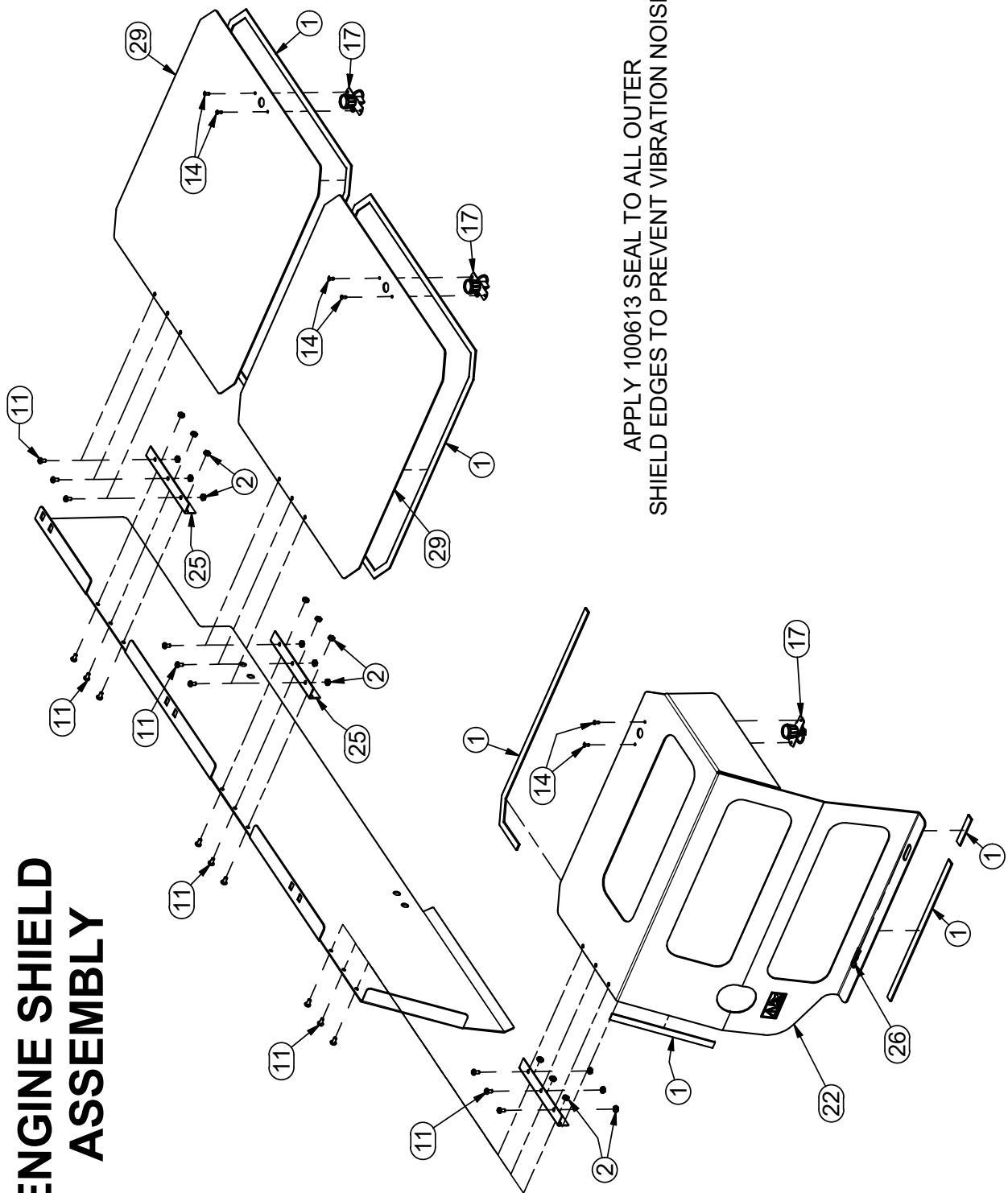
# MIRROR ASSEMBLY

Parts List			
ITEM	QTY	PART #	DESCRIPTION
3	2	110400	BOLT, 3/8-16 X 2.0
5	2	110474	BOLT, 1/4-20 X 1-1/2
8	4	110645	NUT, 3/8-16 WIZ FLANGE
10	2	110667	WASHER, 1/4" LOCK
12	4	110826	NUT, 3/8-16 GR 5
13	2	111185	BOLT, SQUARE U, 3/8-16 x 2.50 x 4.0
16	4	211747	FRICITION WASHER 1.5"
18	2	302139	Convex Mirror, 8" Round, Offset Ball-Stud
19	4	302140	Plug, Snap-in Square, 3/4"
27	2	315385	WELDMENT, SWINGING MIRROR
28	2	315391	WELDMENT, MIRROR U/BOLT MOUNT

SAME PARTS USED ON OPPOSITE SIDE



# ENGINE SHIELD ASSEMBLY



5-17-2021

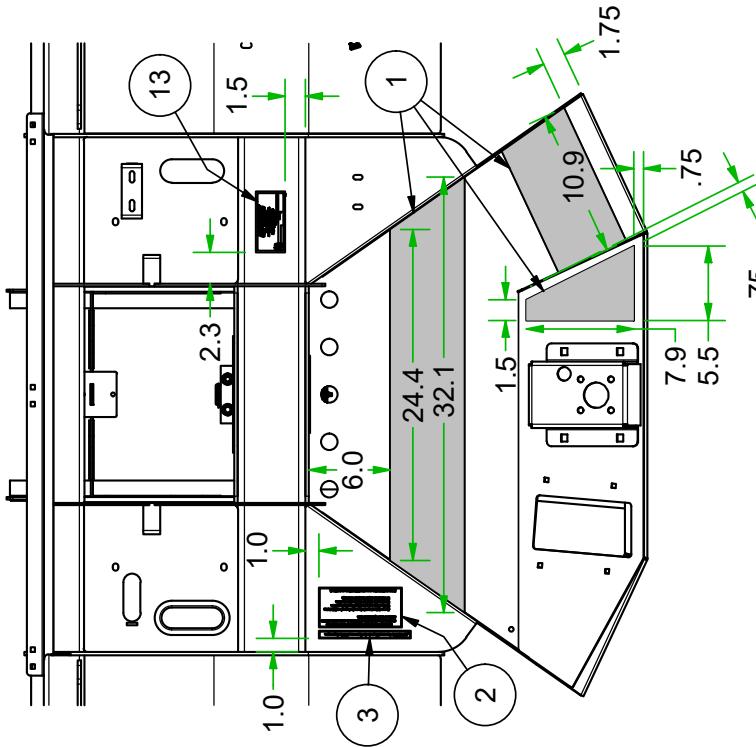
## REAR VIEW

(8.5)  
902233  
(30.0)

2x 1.5

## Parts List

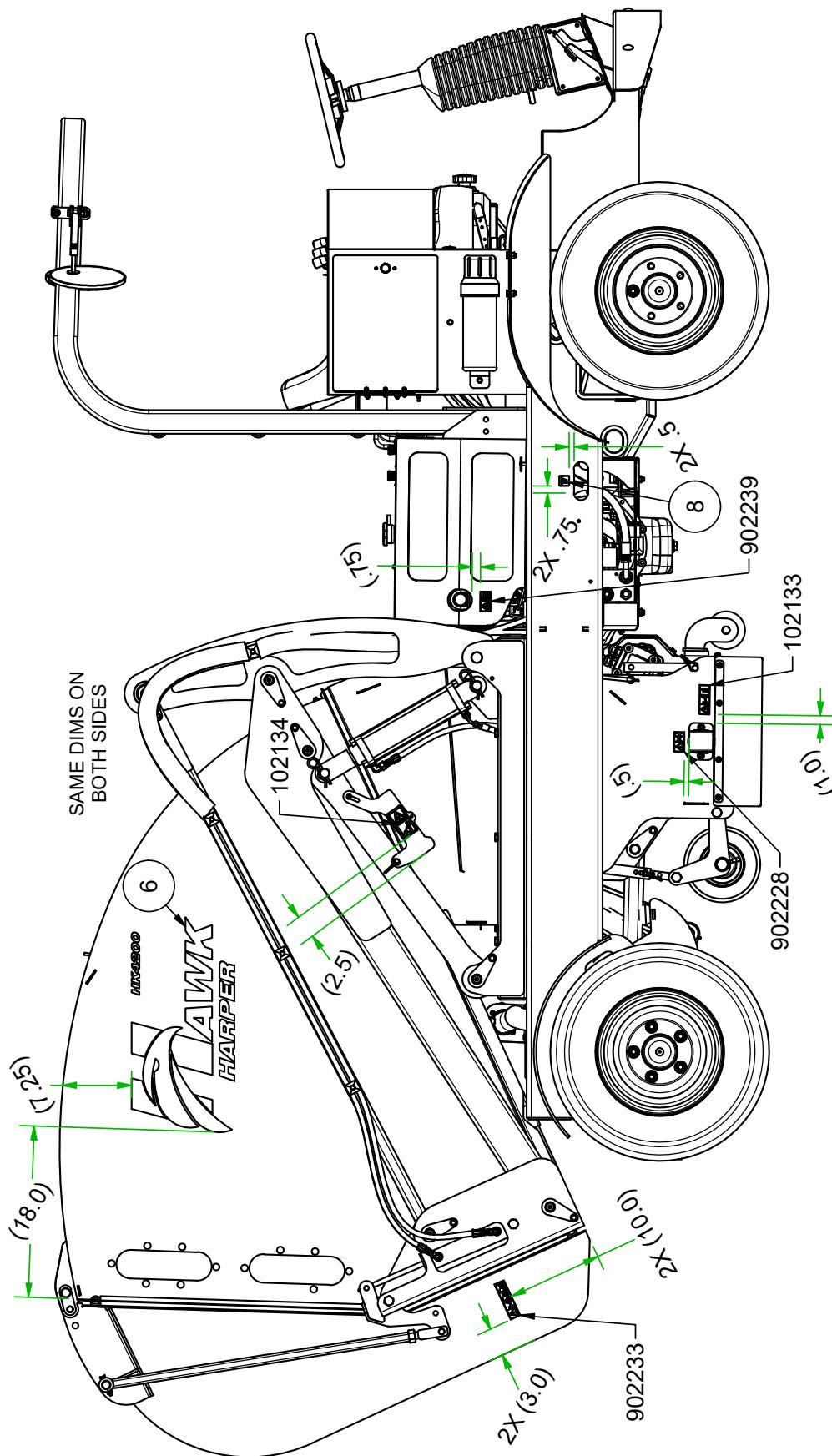
ITEM	QTY	PART #	DESCRIPTION
1	46"	100373	Traction Pad, Flex-tread, 5.5
2	1	202133	Decal, Prop 65, Diesel
3	1	202134	Decal, Prop 65, Short Form
4	1	302106	DECAL, DIESEL FUEL
5	1	302150	Decal, HK Rops Certification
6	2	302155	Decal, Hawk
7	1	800195	DECAL, RECYCLE BATTERY
8	4	802067	Decal, Tie Down Point
9	1	902186	DECAL, EPA STANDARDS
10	1	902231	Decal, Hot Surface, Oil Cooler
11	1	902232	Decal, High Pressure Injection
12	2	902234	Decal, No Lift
13	1	902240	Plate, Serial Number, Harper Turf, Blue
14	1	902242	Decal, Harper Turf Equipment, 30"



## TRACTION PAD INSTALLATION

## DECAL INSTALLATION

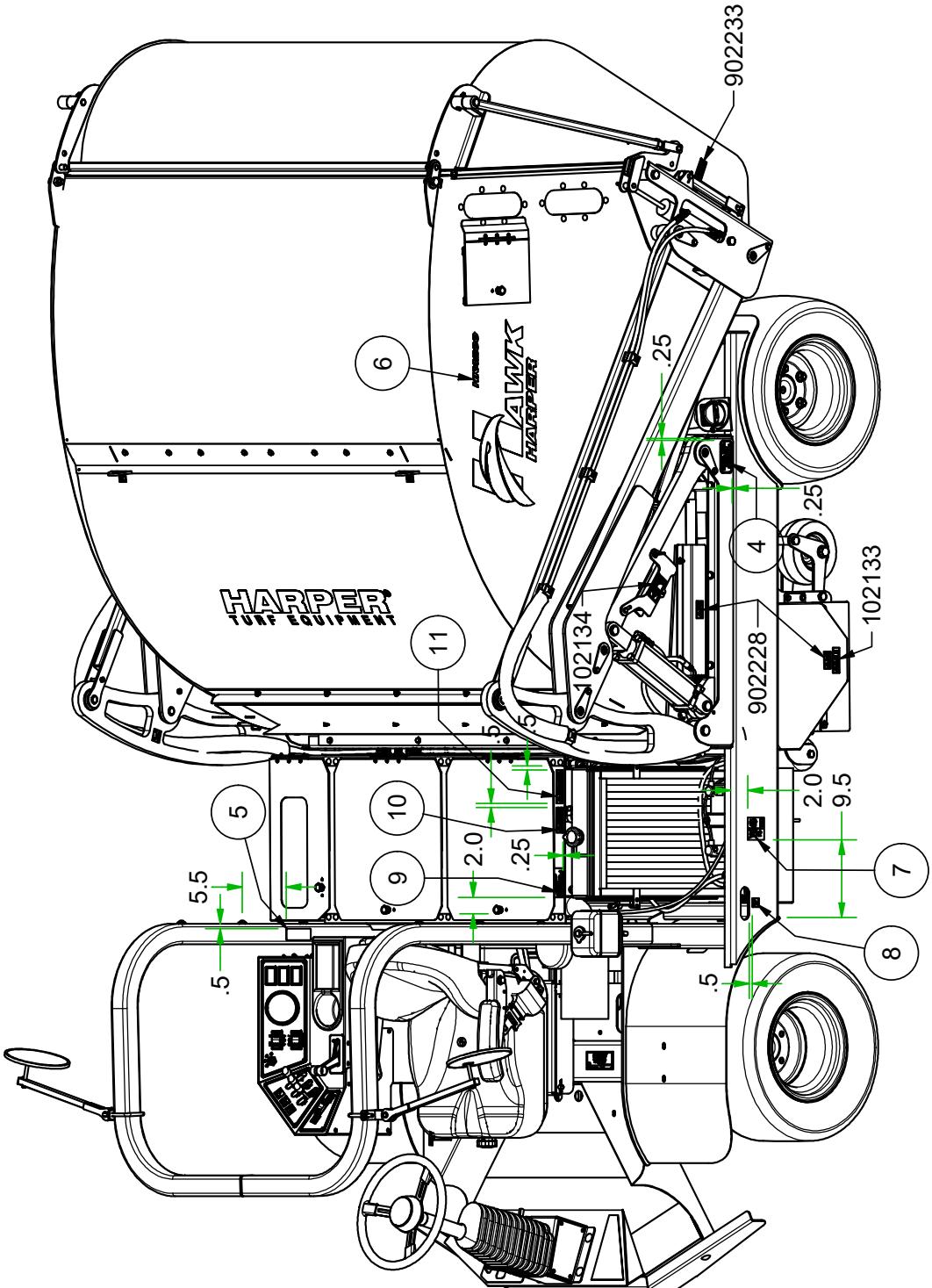
## RH VIEW DECAL INSTALLATION



NOTE: ALL DIMENSIONS FOR REFERENCE, PLACE AS CLOSE TO AS SHOWN AND FOR FULL VISIBILITY

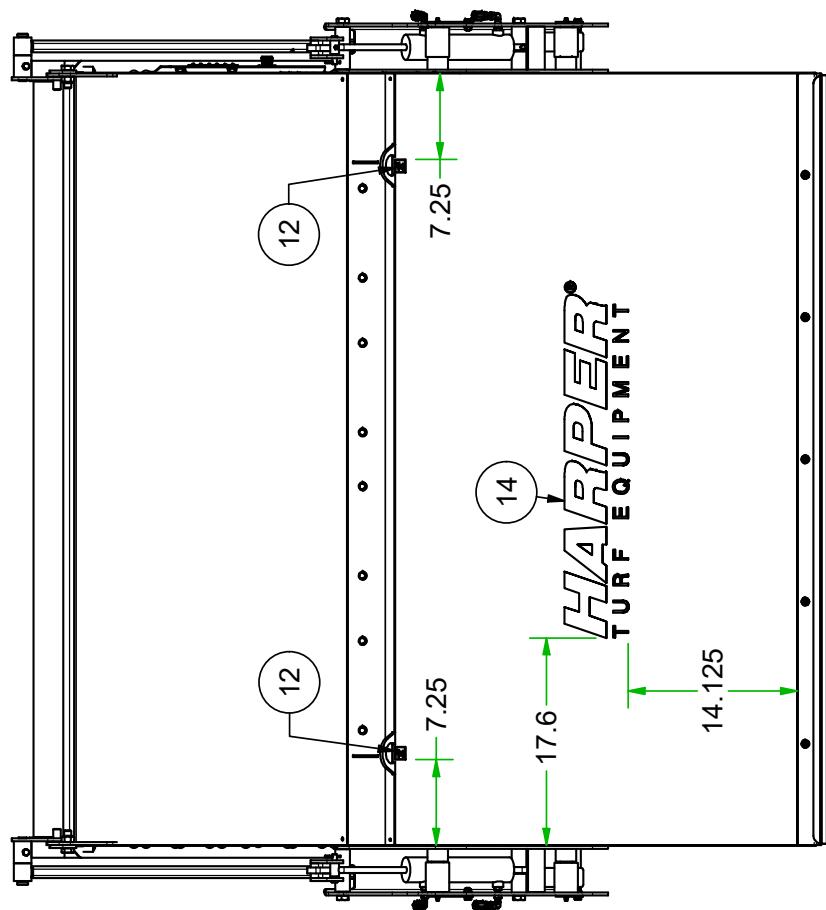
## LH VIEW DECAL INSTALLATION

305108 | REV. NC



NOTE: ALL DIMENSIONS FOR REFERENCE, PLACE AS CLOSE TO AS SHOWN AND FOR FULL VISIBILITY

## HOPPER DECAL INSTALLATION



## **NOTES**

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**HK4200**

**HARPER**  
TURF EQUIPMENT